BX - O
BASIC EXCHANGE PARALLEL MAINTENANCE PROGRAM

September 1, 1961

1. Maintenance program. Used to test data paths to and from I/O units and to and from main memory independent of CPU.

2. Programs becoming obsolete. None.

3. KA EX1 and KA EX1A are applicable to systems using 48 ECS printer code. KA EX1B and KA EX1C are applicable to systems using 48 BCD printer code.

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1. PURPOSE

The purpose of the BX-0 Maintenance Program is to test data paths to and from the I/O units and to and from Main Memory, independent of CPU.

2. EQUIPMENT REQUIREMENTS

N- Necessary for Basic Testing
A- Additional Requirements for Full Testing
* - Exception

2.1 Testing Requirements

0-8K	8K-16K	16K-32K	32K-Above	Ops Console	Card Reader
		N		N	N

Punch	Printer	Disc	Tapes		
N	N		N		

2.2 Buffer Equipment Requirements

Disc	Tapes

3. MODE OF CONTROL

3.1 Self Control

BX-O is exclusively a manually operated test, since it is independent of the CPU. It requires the operator to manually set the bits on the exchange maintenance console and manually execute all instructions. The output from each I/O unit test is indicated in the section containing the instructions for that test.

3.1.1 Procedure

I. INITIAL LOAD PROCEDURE

The program can be loaded by normal IPL procedure. If IPL is inoperative, the following can be used: :

1. By BX manipulation, place the following CW in a main memory location not used by the program.

   Data Word Address - SLC Value
   Word Count - As shown in the program listing
   Refill - 0
   Chain flag - 0, Multiple flag - 1

2. Read by executing the CW in the location in which it was stored by step 1.

II. OVERALL PROCEDURE

All tests of BX-0 require the operator to manually execute control words in Main Memory and to execute various Control and Locate instructions. The following procedure should be followed in the execution of these instructions:

A. Reading or Writing

1. Place the BX mode switch in the TEST MODE position.

2. Depress CLEAR MEMORY pushbutton.

3. Set "Type of Test" to EX MEM.

4. From the BX-0 listing, obtain the main memory address of control word desired. Place this address in the REFILL ADDRESS of the panel keys.

5. In the EXCHANGE MEMORY ADDRESS switch register, enter the CHANNEL NUMBER desired and bit 128 (Control Word Memory). Make the total parity ODD.

6. Depress the "LOAD MEMORY" switch.

7. Depress SINGLE CYCLE pushbutton twice.

8. Turn OFF the load memory switch.

9. In the exchange memory address switch register, turn OFF bit 128. Parity should now be even.

10. Be sure the channel to be used is NOT blocked by the BLOCK CHANNEL switches. All data word transfer, service request, and channel signal simulation switches should be OFF.

11. Set type of test to Main Memory UNIT.

12. Depress the READ or WRITE pushbutton depending upon instruction desired.

13. Depress the SINGLE CYCLE pushbutton and check ACCEPT response.

14. Depress the START Key. The instruction entered will now be executed.

15. To insure proper operation, stop BX and SINGLE CYCLE through BX control word memory until the channel used is selected. At this time, examine the control word for proper interrupt status bits, data word address, and word count setting. Unless otherwise stated. the normal status bit setting is EOP The flag bits (chain, multiple, and skip) should still be at their original setting.

B. Control or Locate Operations

1. Place the BX Mode switch in the TEST MODE position.

2. Depress CLEAR MEMORY pushbutton.

3. Set "type of test" to UNIT TEST.

4. Set the desired channel number in the EXCHANGE MEMORY ADDRESS switch register, even parity count. (Bit 128 must be OFF.)

5. In the C_0 - C_t panel switches, enter the CONTROL CODE or LOCATE NUMBER desired.

6. Depress the CONTROL or LOCATE pushbutton.

7. Depress SINGLE CYCLE pushbutton and check for ACCEPT response.

8. Depress the START pushbutton and the STOP.

III. INDIVIDUAL TEST PROCEDURE AND OUTPUT

A. Chain Printer Tests

1. Execute the control words as shown on the program listing following the overall test procedure.

2. Check printout for correct data as shown below.

PRT 1 operates with chain, multiple, and skip flags zero. Printout is:

THIS LINE OF PRINT CHECKS THE ABILITY TO PRINT. AB -- YZ12-90%./- #$&*%

PRT 2 operates with multiple flag only set. Printout is an all character print, three lines, each identified. Failure will cause only one line to be printed.

PRT 3 operates with multiple flag set and tests the ability to recognize end codes. Printout is three lines each identified. On failure - All data will be on one line.

PRT 4 tests BX for word count of 1. Printout is WDCT 1- for sucess WDCT 1 FAILURE - on failure

PRT 4A tests BX for word count of 2. The printout is: WORD COUNT 2 - On success WORD COUNT 2 FAILURE - on failure.

PRT 5 operates with multiple and chain flags set. Printout is all data from the above tests, a total of 109 64-bit words.

PRT 6 is a scoping loop which prints the all character print data.

PRT 7 is a scoping loop which prints the end code print data.

PRT 8 is a Suppress Post Spacing test loop. It will suppress post spacing 4 times in each line. For success, all data will be on one line, with normal spacing.

PRT 8 - NOW IS A SUPPRESS POST SPACING TEST LOOP.

PRT 9 is a test of the Select Report functions. It prints according to the Select Report key depressed. If no Select Report keys are depressed all of the select report data will be printed.

The test operates in a continuous loop.

PRT 9 - THIS LINE SHOULD BE PRINTED IF SELECT REPORT 'a' IS DEPRESSED.

Where 'a' corresponds to the Select Report key depressed.

B. Card Reader Tests

1. Place reader test deck in card reader and make reader ready. The test deck is numbered octally in column 80.

2. Execute the control words to read in the test deck.

3. Execute the control words for printout or manually fetch the data and compare.

The first test operates with skip, chain, and multiple flags set. The sequence of data is as follows:

1. One Card Read

CARD 1 ..... FIRST CARD READ ... DATA IS IN IOS FORMAT. WORD COUNT ON READ WAS 15. READER PATTERNS IN LATER TEST

2. Word Count 1 Test. On success - WDCT1 On failure - WDCT 1 FAILURE IF THIS PRINTS OR IS IN MEMORY WD CNT-1 was not handled by BX .....

3. Word Count 2 Test. On success - WORD COUNT - 2 - On failure - WORD COUNT - 2 - FAILURE

4. Skip Flag Test. On success - THIS IS THE SKIP READ AREA ..... CARD 4 - SKIP FLAG TEST On failure - IF THIS PRINTS SKIP FLAG FAILED.

5. Multiple Flag Test - 3 cards read. Lines of print begin as follows:

CARD 5
CARD 6
CARD 7

If only one card reads, MF failed and remainder of test will be out of sequence.

6. Long Read Test - 10 cards read. Lines of print begin as follows:

CARD 8
CARD 9
CARD 10
CARD 11
CARD 12
CARD 13
CARD 14
CARD 15
CARD 16
CARD 17

7. Chain Flag Only Test. For success - CARD 18. TWO CARD READ WITH MF-0. ONLY ONE CARD SHOULD READ .... On failure - THIS CARD SHOULD NOT BE READ CARD 19

C. Tape Unit Tests

1. Execute the control words and control instructions at the proper time by following the program listing.

Since most tape operations require control conditions such as rewind, backspace, etc., the tape test requires that the operator perform these operations from BX following the program listing. Many of the tests are designed specifically to test a particular control function and, therefore, must be run as specified by the program listing. Correct operation is evidenced by the correct printout as shown under the description of each of the five tests.

Test 1. Simple Data and Rewind. Check read-in area manually. Data: An all 1's 8-bit byte shifts left continuously until an all 0's word is reached. Following this an all 1's word, a 101010 word, and a 010101 word.

Test 2. Data and backspace test. Data checked by printing results on the printer. Data follows:

For Success - TEST 2. DATA AND BACKSPACE TEST THIS IS RECORD 1 - TEST TWO .... 10 WORDS, CDSC...

TEST 2. RECORD 2 - 15 WORDS, CDSC .. DATA FOLLOWS --- AB ... YZ01 ... 89 --------
RECORD 3 IS BKSP TEST.

TEST 2. BACKSPACE WORKED IF THIS LINE 3
TEST 2. TEST 2 RECORD 4. 10 WORDS CR.
XXXXXXXXXXX

On Failure - IF THIS PRINTS, BACKSPACE FAILED ..

Test 3. Tape Mark Recognition Test. Data checked by printing results on the printer. Data follows:

For Success - TAPE MARK RECOGNITION RECORD 1.

On Failure - IF THIS PRINTS, TAPE MARK FAILED.

Test 4. Backspace file test. Data checked by printing results on the printer. Data follows:

For Success - TEST 4. BACKSPACE FILE TEST TEST 4.
BACKSPACE FILE TEST PASSED .....

On Failure - TEST 4. BACKSPACE FILE FAILED.

Test 5. Space File Test. Data checked by printing results on printer. Data follows:

For Success - TEST 5. SPACE FILE TEST PASSED.

On Failure - SPACE FILE, TEST 5. FAILED.
XXXXXXXXXXXX

Also included is a sequence of control words which reproduce the program on tape. The tape can then be loaded by IPL procedure.

D. Operator's Console Tests

In the operator's console tests the following is provided.

1. Constants for writing on the console display and typewriter.

2. Reserved locations for reading the console switches and typewriter.

3. Extended typewriter write operations tests.

The procedure for each test follows.

Test 1 and 2. Write Operation

1. Execute the control words - write having the console channel selected.

2. After each control word is executed, check the display for the data indicated.

Test 1. Chain, multiple and skip flags zero.

Word one - 1. Byte number word which numbers the 8-bit bytes left to right 0-7.

2. All 1's word

3. All 0's word

4. Alternate 1's and 0's 8 bit bytes.

Word two - 1. All 8's word

2. All 7's word

3. Blank word

Word three - 1. All 1's word

Test 2. Chain flag set, multiple and skip flags zero.

Chaining two words - Word 1 - Byte pattern
Word 2 - All 8's

Chaining three words - Word 1 - All 1's
Word 2 - All 8's
Word 3 - All 0's

Test 3 and 4. Read Operation

1. Set up data patterns in the console switches and digital pot.

2. Execute the control word to read the switches.

3. Execute the same control word to write the data for checking.

4. Change the patterns and repeat step 2 and 3 for a more complete test.

Test 3. All flag bits zero.

1. Read 1 word
2. Read 2 words
3. Read 3 words

Test 4. Chain flag set.

1. Chains 2 words
2. Chains 3 words

Tests 5, 6 and 7. Typewriter write operation.

1. Execute the control words.

2. Check the printout for correct results.

Test 5. Chain, multiple, and skip flags zero.

1. One word - on success TYP TST
on failure TYP TST FAILED

2. End Code Test - on success - END CODE TEST
on failure - END CODE TEST FAILED

3. One line which is A thru Z 1 thru 0

Test 6. Chain flag set.

1. Chain 2 words - on success - CHAINING TEST S
on failure - FAILED

2. Chain 3 words - on success - CHAINING TEST SUCCESS
on failure - FAILED

Test 7. Chain and Multiple flags set

1. Multiple flag and end code - on success - MLTIPLE TEST SUCCESSFUL
On failure - Spaces between 'MLTPLE' and 'TEST'.

2. Simultaneous end code and word count zero - on success - MC TST SUCCESS
On failure - Spaces between 'TEST' and 'SUCCESS'.

Test 8 and 9. Typewriter Read Operation

1. Execute control words and read console.

2. Enter data from console typewriter.

3. Using the same control words and write out data for checking.

Test 8. Chain and multiple flags set.

1. **Read 40 characters, no flags set.**

2. **Read 40 characters, chain, read 32 more.**

3. **Read 8 words multiple flag mode.**

4. **Read 25 words with multiple flag set.**

5. **Read 10 words with the multiple flag set, chain, read 8 more words.**

Test 9. Chain, multiple and skip flags set.

1. **Skip 5 words, read 3 with chain flag only set.**

2. **Skip 4 words in multiple block mode, chain, read 5 more words.**

In the read tests with the multiple flag set, and an end code is entered, the next three words will be read from the console switches.

Typewriter Tests

1. **Backspace test loop.**

   Loops and types - This is a BACKSPACE test.

2. **Ripple test.**

   Types 26 lines upper case letters.

3. **All character ball movement test.**

   Loops and types all characters.

E. Card Punch Tests

Tables of punch formats for checking pattern cards.

1. **Non ECC-Mode, 15 words per card- Starting bit position.**

Word	Column	Row
1	1	12
2	6	2
3	11	6
4	17	12
5	22	2
6	27	6
7	33	12
8	38	2
9	43	6
10	49	12
11	54	2
12	59	6
13	65	12
14	70	2
15	75	6

2. **ECC Mode, 13 words per card.**

   All words begin with the C-bits in Row 12

Word	Column
1	1
2	7
3	13
4	19
5	25
6	31
7	37
8	43
9	49
10	55
11	61
12	67
13	73

3. **Table of bits on which the ECC bits are based.**

ECC Bits	Data Bits
C-0	0-32
C-1	1, 3, 5, ...61, 63, & 32
C2	2-3, 6-7, 10-11, ... 62-63
C-4	4-7, 12-15, ... 60-63
C-8	8-15, 24-31, 40-47, 56-63
C-16	16-31, 48-63
C-32	0, 32-63

C-T is based on overall parity including ECC bits.

Card Punch Test Procedure

1. Make card punch ready.

2. Execute the control words with a write instruction to the card punch.

3. Examine the cards if in the pattern tests, or if in the extended tests use the control words provided for the card reader and printer to check the data.

1. Test 1. Punch Pattern Cards

Non ECC Mode - Punches a diagonal pattern from Column 1, Row 12, to Column 12, Row 9, a total of 13 cards punched.

ECC Mode

1. Punch 9 cards and floats a '1' in the C-bits.

2. Punch 9 cards and floats a '0' in the C-bits.

Test 2. Extended Punch Tests

This test uses printer data and the card reader and chain printer for checking. Each test card is identified with an octal number in the last column.

3.1.2. Success Indications

The success indications are indicated in the detailed test procedure.

3.1.3 Failure Indications

The failure indications are listed in the detailed test procedure.

3.1.4 Supplementary Information

I. Strap Code Control Word Format

The format for a Strap Coded Control Word is as follows:

CW(OP), Data Word Address, Word Count, Refill, where 'OP' is coded as in the table below:

OP	Skip Flag	Multiple Flag	Chain Flag	Operation
CR	0	0	0	Count Within Record
CCR	0	0	1	Chain Counts Within Record
CD	0	1	0	Count Disregarding Record
CDSC	0	1	1	Count Disregarding Record, Skip and Chain
SCR	1	0	0	Skip, Count Within Record
SCCR	1	0	1	Skip, Chain Counts Within Record
SCD	1	1	0	Skip, Count Disregarding Record
SCDSC	1	1	1	Skip, Count Disregarding Record, Skip and Chain

II. Explanation of File Numbers

Four versions of the BX-0 program are presently available. These programs differ only in the printer code used and in the starting location. The versions are:

File No.	Printer Code	Starting Location
KA EX1	48 ECS	50,000
KA EX1A	48 ECS	100,000
KA EX1B	48 BCD	50,000
KA EX1C	48 BCD	100,000

4. PROGRAM PHILOSOPHY

BX-0 is designed for parallel maintenance. It uses control word sequences to test data paths to and from main memory and to and from the I/O units. The test is independent of CPU and requires the ability to get to and from main memory to operate.

All tests start with the simplest control words and proceed to include the chain, multiple and skip flags. The test is executed completely from BX and, therefore does not test communication paths to and from CPU or all of the control functions.

Program: BX-0
File: KA EX1
EC Level: KA EX1A
KA EX1B
KA EX1C

PROGRAM SUMMARY

PROGRAMS OBSOLETED None.

FUNCTION To test the data paths to and from the I/O units and to and from main memory independent of CPU.

BASIC CONTROLS Controlled manually from the BX console.

MANUAL INTERVENTIONS Not applicable.

SUCCESS INDICATIONS Correct data in memory, and correct printouts.

FAILURE INDICATIONS Failure printouts and incorrect data in main memory.

PROGRAM OPTIONS

FIGURE 1

PRNID,BXO - BASIC EXCHANGE OFF LINE MAINTENANCE-E.W.JOHNSON

KA EX 1B

PRNS
PUNFUL

AUGUST 8, 1961

E. W. JOHNSON

SLC,%8=47777.0 047777.00
SEM,6

CW%CD=,START,END-START+1,,0 -IPL CONTROL WORD 50000.00 20 070740.00 00 047777.00
THIS CONTROL WORD IS USED TO READ IN PROGRAM
AUTOMATICALLY BY NORMAL - INITIAL PROGRAM LOAD -
PROCEDURES...IF IPL IS UNAVAILABLE, THE PROGRAM
DECK CAN BE MANUALLY READ-IN BY USING THE
FOLLOWING PROCEDURE.....

1. BY BX MANIPULATION, PLACE THE FOLLOWING CW
IN MAIN MEMORY LOCATION 100.0...

DATA WD ADR - 7777.0
WORD COUNT -
REFILL - 0
CF-0, MF-1

2. READ BY EXECUTING STORED CW IN LOC. 100.0

THE FOLLOWING TABLE INDICATES STRAP CONTROL WORD
CODING.....

FORMAT.....CW%OP=,DATA WD ADR,WD COUNT,REFILL

OP	SKIP	MF	CF	OPERATION
CR	0	0	0	COUNT WITHIN RECORD
CCR	0	0	1	CHAIN CNTS WITHIN RECORD
CD	0	1	0	COUNT DISREGARDING RECORD
CDSC	0	1	1	COUNT DISREGARDING RECORD SKIP AND CHAIN
SCR	1	0	0	SKIP,COUNT WITHIN RECORD
SCCR	1	0	1	SKIP,CHAIN COUNTS WITHIN RECORD
SCD	1	1	0	SKIP,COUNT,DISREGARDING RECORD
SCDSC	1	1	1	SKIP,COUNT,DISREGARDING RECORD,SKIP AND CHAIN

FOR A DETAILED PROGRAM DESCRIPTION, REFER TO
PROGRAM WRITE-UP

```
START   NOP                     -START OF TEST                  0.30 00                 050000.00
        NOP                     -PRINTER SECTION                0.30 00                 050000.40
-
-
-       PRINTER TEST CONTROL WORDS
-
PRT1    CW%CR¤,LINE1,17,0       -EXECUTE THIS CONTROL TO TEST   50016.00 00 000420.00 00  050001.00
                                -ABILITY OF PRINTER TO PRINT.
                                -PRINTS ONE LINE OF PRINT INFO.
-
-
PRT2    CW%CD¤,LINE2,51,0       -MF TEST- ALL CHARACTER PRINT.  50037.00 20 001460.00 00  050002.00
                                -NO END CODE- 3 LINES OF PRINT.
-
-
PRT3    CW%CD¤,LINE3,31,0       -MF TEST,END CODE TEST-         50122.00 20 000760.00 00  050003.00
                                -PRINTS 3 LINES OF PRINT,EACH
                                -IDENTIFIED.
-
-
PRT4    CW%CR¤,BXWC1,1,0        -BX WORD COUNT -1- TEST.-       50161.00 00 000020.00 00  050004.00
                                -USES PRINTER TO INDICATE
                                -SUCCESS.PRINTS WDCT1 ON SUCCESS,
                                -WDCT1  FAILURE-ON FAILURE
-
-
PRT4A   CW%CR¤,BXWC2,2,0        -BX WORD COUNT -2- TEST.        50163.00 00 000040.00 00  050005.00
                                -USES PRINTER TO INDICATE
                                -SUCCESS.PRINTS-WORD COUNT 2-
                                -ON SUCCESS AND-WORD COUNT 2
                                -FAILURE-ON FAILURE.
-
-
PRT5    CW%CDSC¤,LINE1,17,$+1.  -CHAIN FLAG/MULTIPLE FLAG TEST  50016.00 60 000421.20 07  050006.00
        CW%CDSC¤,LINE2,51,$+1.  -DO ALL ABOVE FUNCTIONS         50037.00 60 001461.20 08  050007.00
        CW%CDSC¤,LINE3,31,$+1.  -WITH CF AND MF SET 1           50122.00 60 000761.20 09  050010.00
        CW%CDSC¤,BXWC1,1,PRT4A                                  50161.00 60 000021.20 05  050011.00
-                                                                          000 0101
-
PRT6    CW%CDSC¤,LINE2,51,$     -SCOPING LOOP-CONTINOUS PRINT   50037.00 60 001461.20 0A  050012.00
-
PRT7    CW%CDSC¤,LINE3,31,$     -SCOPING LOOP-END CODE PRT      50122.00 60 000761.20 0B  050013.00
-
-
-       SELECT REPORT PRINTER TEST
-
-
        -THE PROGRAM LOOPS PRINTING ACCORDING TO THE
        -SELECT REPORT KEY DEPRESSED.
-
-
-       IF NO KEY IS DEPRESSED THE PROGRAM WILL LOOP
-       PRINTING ALL DATA FROM THIS TEST.
-
-
PRT8    CW%CDSC¤,CCFC,32,$      -LOOP FOR CARRIAGE              50207.00 60 001001.20 0C  050014.00
                                -CONTROL FIELD TESTS.
-
-
-       SUPPRESS POST-SPACING PRINTER TEST
-
PRT9    CW%CDSC¤,SPS1,17,$      -LOOP FOR SUPPRESS              50166.00 60 000421.20 0D  050015.00
```

-POST SPACING TEST

END OF PRINTER TESTS

```
-       PRINT DATA
-
-
        CNOP
LINE1   %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE                          000   050016.00
        %  AZ¤DD%BU,8,8¤,THIS LINE OF PRINT CHECKS THE ABILITY TOZ                  050016.10
        %  AZ¤DD%BU,8,8¤, PRINT. ABCDEFGHIJKLMNOPQRSTUVWXZ                        050023.10
        %  AA¤DD%BU,8,8¤,YZ1234567890A                                           050027.10
        %AZ¤DD%BU,8,8¤,,-%¤+-+$*/,Z                                             050030.50
        %16¤DD%BU,8,8¤,1A                                                  032   050032.00
        %  AZ¤DD%BU,8,8¤,  ONLY ONE LINE SHOULD PRINT    Z                        050032.10
        %  AZ¤DD%BU,8,8¤,PRT1   Z                                                050036.10
        CNOP
-
-
LINE2   %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE-LINE 1                   000   050037.00
        %  AZ¤DD%BU,8,8¤, ABCDEFGHIJKLMNOPQRSTUVZ                                050037.10
        %  AT¤DD%BU,8,8¤,WXYZ0123456789 ABCDEFGHIJKLMNOPQT                       050042.00
        %  AQ¤DD%BU,8,8¤,RSTUVWXYZ0123456789 ALL CHARACTEQ                       050046.00
        %  AZ¤DD%BU,8,8¤,R PRINT Z                                               050052.00
        %AZ¤DD%BU,8,8¤,,-%¤+-+$*/,Z                                             050053.00
        %16¤DD%BU,8,8¤,1A                                                  032   050054.30
        %  AZ¤DD%BU,8,8¤, THREE LINESZ                                           050054.40
        %  AZ¤DD%BU,8,8¤, FIRST LINE     Z                                       050056.00
-
        %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE-LINE 2                   000   050060.00
        %  AZ¤DD%BU,8,8¤, ABCDEFGHIJKLMNOPQRSTUVZ                                050060.10
        %  AT¤DD%BU,8,8¤,WXYZ0123456789 ABCDEFGHIJKLMNOPQT                       050063.00
        %  AQ¤DD%BU,8,8¤,RSTUVWXYZ0123456789 ALL CHARACTEQ                       050067.00
        %  AZ¤DD%BU,8,8¤,R PRINT Z                                               050073.00
        %AZ¤DD%BU,8,8¤,,-%¤+-+$*/,Z                                             050074.00
        %16¤DD%BU,8,8¤,1A                                                  032   050075.30
        %  AZ¤DD%BU,8,8¤, THREE LINESZ                                           050075.40
        %  AZ¤DD%BU,8,8¤, SECOND LINE    Z                                       050077.00
-
        %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE-LINE 3                   000   050101.00
        %  AZ¤DD%BU,8,8¤, ABCDEFGHIJKLMNOPQRSTUVZ                                050101.10
        %  AT¤DD%BU,8,8¤,WXYZ0123456789 ABCDEFGHIJKLMNOPQT                       050104.00
        %  AQ¤DD%BU,8,8¤,RSTUVWXYZ0123456789 ALL CHARACTEQ                       050110.00
        %  AZ¤DD%BU,8,8¤,R PRINT Z                                               050114.00
        %AZ¤DD%BU,8,8¤,,-%¤+-+$*/,Z                                             050115.00
        %16¤DD%BU,8,8¤,1A                                                  032   050116.30
        %  AZ¤DD%BU,8,8¤, THREE LINESZ                                           050116.40
        %  AZ¤DD%BU,8,8¤, THIRD LINE     Z                                       050120.00
-
-
LINE3   %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE                          000   050122.00
        %  AZ¤DD%BU,8,8¤,MULTIPLE FLAG EQUAL 1 TEST WITH Z                       050122.10
        %  AZ¤DD%BU,8,8¤,END CODE. THIS IS THE FIRST LINE.....Z                  050126.10
        %8¤DD%BU,8,8¤,376        -FIRST END CODE END OF LINE 1               376   050132.70
        %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE-2ND LINE                 000   050133.00
        %  AZ¤DD%BU,8,8¤,THIS IS THE SECOND LINE OF MF/END CODE TZ               050133.10
        %  AZ¤DD%BU,8,8¤,EST. 376 IS USED FOR END CODE..Z                        050140.10
        %8¤DD%BU,8,8¤,376,000                                              376   050144.00
                                                                           000   050144.10
        %  AZ¤DD%BU,8,8¤,FAILZ                                                   050144.20
        CNOP
        %8¤DD%BU,8,8¤,000        -CHAR CONTROL BYTE-3RD LINE                 000   050145.00
        %  AZ¤DD%BU,8,8¤,THIS IS THE THIRD AND LAST LINE OF END CZ               050145.10
        %  AZ¤DD%BU,8,8¤,ODE/MF TEST-PRT3-WD CNT 0 STOPS PRINTZ                  050152.10
        %  AZ¤DD%BU,8,8¤, ON THIS LINE.....Z                                     050156.60
        CNOP
```

```
-
BXWC1   %8¤DD%BU,8,8¤,000                                          000   050161.00
        %  AZ¤DD%BU,8,8¤,WDCT1  Z                                        050161.10
        %  AZ¤DD%BU,8,8¤,FAILUREZ                                        050162.00
-
        CNOP
-
BXWC2   %8¤DD%BU,8,8¤,000                                          000   050163.00
        %  AZ¤DD%BU,8,8¤,WORD COUNT -2- Z                                050163.10
        %  AZ¤DD%BU,8,8¤,FAILURE Z                                       050165.00
-
-       SUPPRESS POST SPACING TEST DATA
-
SPS1    %8¤DD%BU,8,8¤,360,000                                      360   050166.00
                                                                   000   050166.10
        %  AZ¤DD%BU,8,8¤,NOW  Z                                          050166.20
        %8¤DD%BU,8,8¤,376                                          376   050166.70
SPS2    %8¤DD%BU,8,8¤,360,000,000,000,000,000                      360   050167.00
                                                                   000   050167.10
                                                                   000   050167.20
                                                                   000   050167.30
                                                                   000   050167.40
                                                                   000   050167.50
        %  AZ¤DD%BU,8,8¤,IS A SUPPZ                                      050167.60
        %8¤DD%BU,8,8¤,376                                          376   050170.70
SPS3    %8¤DD%BU,8,8¤,360,000,000,000,000,000,000                  360   050171.00
                                                                   000   050171.10
                                                                   000   050171.20
                                                                   000   050171.30
                                                                   000   050171.40
                                                                   000   050171.50
                                                                   000   050171.60
        DD%BU,64,8¤,0                         0000000000000000000000   050171.70
        %  AZ¤DD%BU,8,8¤,RESS POZ                                        050172.70
        %8¤DD%BU,8,8¤,376,000                                      376   050173.60
                                                                   000   050173.70
SPS4    %8¤DD%BU,8,8¤,360,000,000,000,000,000                      360   050174.00
                                                                   000   050174.10
                                                                   000   050174.20
                                                                   000   050174.30
                                                                   000   050174.40
                                                                   000   050174.50
        DD%BU,64,8¤,0                         0000000000000000000000   050174.60
        DD%BU,64,8¤,0                         0000000000000000000000   050175.60
        %  AZ¤DD%BU,8,8¤,ST SPACING T  Z                                 050176.60
        %8¤DD%BU,8,8¤,376,000,000,000                              376   050200.40
                                                                   000   050200.50
                                                                   000   050200.60
                                                                   000   050200.70
SPS5    %8¤DD%BU,8,8¤,000                                          000   050201.00
        DD%BU,64,8¤,0                         0000000000000000000000   050201.10
        DD%BU,64,8¤,0                         0000000000000000000000   050202.10
        DD%BU,64,8¤,0                         0000000000000000000000   050203.10
        DD%BU,64,8¤,0                         0000000000000000000000   050204.10
        %  AZ¤DD%BU,8,8¤,EST LOOP..Z                                     050205.10
        %8¤DD%BU,8,8¤,376                                          376   050206.30
        CNOP                                  0.30 00                    050206.40
-
-       SELECT REPORT TEST DATA
-
CCFC    %8¤DD%BU,8,8¤,341,000                                      341   050207.00
                                                                   000   050207.10
        %  AZ¤DD%BU,8,8¤,THIS LINE SHOULD BE PRINTED IF SELECT Z         050207.20
        %  AZ¤DD%BU,8,8¤,REPORT 1 IS DEPRESSED..Z                        050214.00
        %8¤DD%BU,8,8¤,376                                          376   050216.70
        %8¤DD%BU,8,8¤,342,000                                      342   050217.00
```

```
%  AZ¤DD%BU,8,8¤,THIS LINE SHOULD BE PRINTED IF SELECT Z
%  AZ¤DD%BU,8,8¤,REPORT 2 IS DEPRESSED..Z
%8¤DD%BU,8,8¤,376                                                    376   050226.70
%8¤DD%BU,8,8¤,344,000                                               344   050227.00
                                                                    000   050227.10
%  AZ¤DD%BU,8,8¤,THIS LINE SHOULD BE PRINTED IF SELECT Z
%  AZ¤DD%BU,8,8¤,REPORT 3 IS DEPRESSED..Z
%8¤DD%BU,8,8¤,376                                                    376   050236.70
%8¤DD%BU,8,8¤,350,000                                               350   050237.00
                                                                    000   050237.10
%  AZ¤DD%BU,8,8¤,THIS LINE SHOULD BE PRINTED IF SELECT Z
%  AZ¤DD%BU,8,8¤,REPORT 4 IS DEPRESSED..Z
%8¤DD%BU,8,8¤,376                                                    376   050246.70
```

CARD READER TESTS

*****OPERATOR*****

PLACE THE READER TEST DECK IN CARD READER
HOPPER AND MAKE READER READY. THE FIRST CONTROL
WORD SEQUENCE WILL READ IN THE ENTIRE TEST DECK.

....IF IT IS DESIRED TO RUN EACH TEST SEPARATELY,
THE ENTIRE CONTROL WORD SEQUENCE IS REPEATED WITHOUT
CHAIN FLAGS. RUN THIS SEQUENCE ONLY IF CHAIN FLAG
OPERATION IS QUESTIONABLE.ADDITIONAL TESTS ARE
INCLUDED,SEPARATE TO THE FIRST AND SECOND CW SEQUENCE,
WHICH CHECK VARIOUS OPTIONS OF READER SUCH AS SCOPING
FEATURES AND ECC TESTS.....

ONE TEST DECK IS AVAILABLE FOR THE READER TESTS.

TEST DECK ONE CONTAINS MOSTLY IQS DATA WHICH ARE
CHECKED BY EXECUTING CHKRDR CONTROL WORD SEQUENCE
AND PRINTING RESULTS ON CHAIN PRINTER. THE IQS DATA
WAS CHOSEN TO BE SELF EXPLANATORY. THE LAST WORD OF
EACH CARD IS IDENTIFIED AS DESCRIBED BEFORE IN BOTH DECKS

THE PUNCH TEST OUTPUT CAN ALSO BE USED FOR CHECKING THE
CARD READER.

RDR	CW%CDSC¤,CARD1,15,$+1.0	-FIRST CARD-IDENTIFIED	50313.00 60 000361.20 A8	050247.00
	CW%CDSC¤,CARD2,1,$+1.0	-SECOND CARD-WORD COUNT 1 TEST. -SHOULD SKIP TO THIRD CARD.	50332.00 60 000021.20 A9	050250.00
	CW%CDSC¤,CARD3,2,$+1.0	-THIRD CARD-WORD COUNT 2 TEST. -SHOULD SKIP TO FOURTH CARD.	50351.00 60 000041.20 AA	050251.00
	CW%SCCR¤,CARD4,4,$+1.0	-FIRST 4 WORDS OF CARD4 SHOULD BE -SKIPPED,WITH SKIP FLAG.	50370.00 50 000101.20 AB	050252.00
	CW%CDSC¤,CARD4+4.0,11,$+1.0	-READ IN REMAINDER OF CARD 4.	50374.00 60 000261.20 AC	050253.00
	CW%CDSC¤,CARD5,45,$+1.0	-READ IN 3 CARDS-MF READ.	50407.00 60 001321.20 AD	050254.00
	CW%CDSC¤,CARD8,150,$+1.0	-LONG READ-10 CARDS.	50464.00 60 004541.20 AE	050255.00
	CW%CR¤,CARD18,30,0	-SHOULD ONLY READ ONE CARD.	50712.00 00 000740.00 00	050256.00

```
-
-
-
-       THE RESULTS OF READER TEST CAN EASILY BE DETERMINED BY
-       TWO MEANS.
-
-            1. EXECUTE CHKRDR CNT WDS AND PRINT RESULTS ON
-               CHAIN PRINTER. OR.
-            2. MANUALY FETCH READ IN DATA...THE LAST WORD
-               OF EACH CARD HAS ITS OCTAL CARD NUMBER
-               IN THE LAST 8 BIT POSITIONS.WHERE FULL CARD
-              WAS NOT READ.COMPARE WITH IQS STATEMENTS.
-
-
-       THE ABOVE CONTROL WORD SEQUENCE IS NOW REPEATED
-       WITHOUT CHAIN FLAGS
-
-
RDR1   CW%CR¤,CARD1,15,0        -FIRST CARD                          50313.00 00 000360.00 00     050257.00
-
RDR2   CW%CR¤,CARD2,1,0         -SECOND CARD-WORD COUNT 1 TEST.      50332.00 00 000020.00 00     050260.00
                                -SHOULD SKIP TO THIRD CARD
-
RDR3   CW%CR¤,CARD3,2,0         -THIRD CARD-WORD COUNT 2 TEST.       50351.00 00 000040.00 00     050261.00
RDR4                            -SHOULD SKIP TO FOURTH CARD.             0.00 00 000000.00 00     050262.00
-
RDR5   CW%SCR¤,CARD4,4,0        -SKIP FIRST 4 WORDS WITH SKIP FLAG.  50370.00 10 000100.00 00     050263.00
-
RDR6   CW%CD¤,CARD4+4.0,11,0    -READ-IN REMAINDER OF CARD 4.        50374.00 20 000260.00 00     050264.00
-
RDR7   CW%CD¤,CARD5,45,0        -THREE CARD MF READ.                 50407.00 20 001320.00 00     050265.00
-
RDR8   CW%CD¤,CARD8,150,0       -LONG READ- 10 CARDS.                50464.00 20 004540.00 00     050266.00
-
RDR9   CW%CR¤,CARD18,30,0       -SHOULD ONLY READ ONE CARD.          50712.00 00 000740.00 00     050267.00
-
-
-  MORE TESTS WILL BE ADDED AT A LATER DATE
-
-
-
-       THE FOLLOWING GROUP OF CONTROL WORDS PRINT
-       READ IN DATA OF READER TEST. PROVISIONS ARE
-       INCLUDED TO PRINT FAILURE INDICATIONS OF
-       ALL TESTS.FOR EXPLANATION.REFER TO PROGRAM
-       DESCRIPTION WRITE-UP...
-
-
CHKRDR CW%CDSC¤,CARD1,15,$+1.0                                      50313.00 60 000361.20 B9     050270.00
       CW%CDSC¤,CARD2,15,$+1.0                                      50332.00 60 000361.20 BA     050271.00
       CW%CDSC¤,CARD3,15,$+1.0                                      50351.00 60 000361.20 BB     050272.00
       CW%CDSC¤,CARD4,15,$+1.0                                      50370.00 60 000361.20 BC     050273.00
       CW%CDSC¤,CARD5,15,$+1.0                                      50407.00 60 000361.20 BD     050274.00
       CW%CDSC¤,CARD6,15,$+1.0                                      50426.00 60 000361.20 BE     050275.00
       CW%CDSC¤,CARD7,15,$+1.0                                      50445.00 60 000361.20 BF     050276.00
       CW%CDSC¤,CARD8,15,$+1.0                                      50464.00 60 000361.20 C0     050277.00
       CW%CDSC¤,CARD9,15,$+1.0                                      50503.00 60 000361.20 C1     050300.00
       CW%CDSC¤,CARD10,15,$+1.0                                     50522.00 60 000361.20 C2     050301.00
       CW%CDSC¤,CARD11,15,$+1.0                                     50541.00 60 000361.20 C3     050302.00
       CW%CDSC¤,CARD12,15,$+1.0                                     50560.00 60 000361.20 C4     050303.00
       CW%CDSC¤,CARD13,15,$+1.0                                     50577.00 60 000361.20 C5     050304.00
       CW%CDSC¤,CARD14,15,$+1.0                                     50616.00 60 000361.20 C6     050305.00
       CW%CDSC¤,CARD15,15,$+1.0                                     50635.00 60 000361.20 C7     050306.00
```

```
CW%CDSC¤,CARD16,15,$+1.0
CW%CDSC¤,CARD17,15,$+1.0
CW%CDSC¤,CARD18,15,$+1.0
CW%CD¤,CARD19,15,0
```

```
50673.00 60 000361.20 C9      050310.00
50712.00 60 000361.20 CA      050311.00
50731.00 20 000360.00 00      050312.00
```

```
-
-       READ IN AREA FOR RDR AND RDR1-RDR9 TESTS
-
-
        CNOP
-
CARD1   DR%BU,64,8¤,14                                          16.00       050313.00
        DR%BU,64,8¤,1           -CARD 1 IDENTITY                 1.00       050331.00
-
CARD2   DR%BU,64,8¤,1           -WORD COUNT 1 DATA               1.00       050332.00
        DR%BU,64,8¤,14          -THIS AREA SHOULD BE BLANK      16.00       050333.00
-
CARD3   DR%BU,64,8¤,2           -WORD COUNT 2 DATA               2.00       050351.00
        DR%BU,64,8¤,13          -THIS AREA SHOULD BE BLANK      15.00       050353.00
-
CARD4   %  AZ¤DD%BU,8,8¤, THIS IS THE SKIP READ AREA.....Z                   050370.00
        DR%BU,64,8¤,10          -CARD 4 DATA                    12.00       050374.00
        DR%BU,64,8¤,1           -CARD 4 IDENTITY                 1.00       050406.00
-
CARD5   DR%BU,64,8¤,14          -CARD 5 DATA                    16.00       050407.00
        DR%BU,64,8¤,1           -CARD 5 IDENTITY                 1.00       050425.00
-
CARD6   DR%BU,64,8¤,14          -CARD 6 DATA                    16.00       050426.00
        DR%BU,64,8¤,1           -CARD 6 IDENTITY                 1.00       050444.00
-
CARD7   DR%BU,64,8¤,14          -CARD 7 DATA                    16.00       050445.00
        DR%BU,64,8¤,1           -CARD 7 IDENTITY                 1.00       050463.00
-
CARD8   DR%BU,64,8¤,14          -CARD 8 DATA                    16.00       050464.00
        DR%BU,64,8¤,1           -CARD 8 IDENTITY %OCTAL¤         1.00       050502.00
-
CARD9   DR%BU,64,8¤,14          -CARD 9 DATA                    16.00       050503.00
        DR%BU,64,8¤,1           -CARD 9 IDENTITY %OCTAL¤         1.00       050521.00
-
CARD10  DR%BU,64,8¤,14                                          16.00       050522.00
        DR%BU,64,8¤,1           -CARD 10 IDENTITY %OCTAL¤        1.00       050540.00
-
CARD11  DR%BU,64,8¤,14                                          16.00       050541.00
        DR%BU,64,8¤,1           -CARD 11 IDENTITY %OCTAL¤        1.00       050557.00
-
CARD12  DR%BU,64,8¤,14                                          16.00       050560.00
        DR%BU,64,8¤,1           -CARD 12 IDENTITY %OCTAL¤        1.00       050576.00
-
CARD13  DR%BU,64,8¤,14                                          16.00       050577.00
        DR%BU,64,8¤,1           -CARD 13 IDENTITY                1.00       050615.00
-
CARD14  DR%BU,64,8¤,14                                          16.00       050616.00
        DR%BU,64,8¤,1           -CARD 14 IDENTITY                1.00       050634.00
-
CARD15  DR%BU,64,8¤,14                                          16.00       050635.00
        DR%BU,64,8¤,1           -CARD 15 IDENTITY                1.00       050653.00
-
CARD16  DR%BU,64,8¤,14                                          16.00       050654.00
        DR%BU,64,8¤,1           -CARD 16 IDENTITY                1.00       050672.00
-
CARD17  DR%BU,64,8¤,14                                          16.00       050673.00
        DR%BU,64,8¤,1           -CARD 17 IDENTITY                1.00       050711.00
-
CARD18  DR%BU,64,8¤,14                                          16.00       050712.00
        DR%BU,64,8¤,1           -CARD 18 IDENTITY                1.00       050730.00
-
CARD19  DR%BU,64,8¤,15          -CARD 19 SHOULD NOT HAVE READ   17.00       050731.00
```

729-IV- TAPE TESTS

BOTH DATA AND TAPE CONTROL ARE CHECKED IN THESE
TESTS. INSTRUCTIONS ARE INCLUDED WITHIN THE TESTS
INDICATING THE TYPE OF CONTROL INSTRUCTION
NEEDED, ITS CODE FOR MANUAL EXECUTION, AND THE
TIME OF WHICH IT SHOULD BE EXECUTED. EACH
STEP OF A PARTICULAR TEST IS NUMBERED BY ORDER
OF EXECUTION.

TEST 1.- SIMPLE DATA AND REWIND.
MANUALLY LOCATE DRIVE.
1.-REWIND TAPE. CONTROL CODE 01011110
2.-EXECUTE FOLLOWING CONTROL WORD-WRITE

CW%CR¤,RCRDA,12,0 51004.00 00 000300.00 00 050750.00

3.-REWIND TAPE. CONTROL CODE 01011110
4.-EXECUTE FOLLOWING CONTROL WORD-READ

CW%CR¤,TPRD1,12,0 51140.00 00 000300.00 00 050751.00

TO CHECK DATA, CHECK READ IN AREA MANUALLY.
DATA IS IN A SIMPLE FORM. AN ALL ONES BYTE
SHIFTS CONTINUALY TO THE LEFT ONE FULL BYTE
FOR EACH WORD READ UNTILL AN ALL ZEROS WORD
IS REACHED. FOLLOWING THIS IS AN ALL ONES
WORDS, A 10101.....WORD, AND A 01010.....WORD.

```
-       TEST 2.- DATA AND BACKSPACE TEST
-              TEST CHECKED BY PRINTING RESULTS
-              ON CHAIN PRINTER.
-
-       1.-LOCATE DESIRED DRIVE.
-       2.-REWIND TAPE. CONTROL CODE 01011110
-       3.-EXECUTE FOLLOWING GROUP OF CONTROL WORDS-WRITE
-
        CW%CDSC¤,RCRD1,10,S+1.0          51020.00 60 000241.21 EB    050752.00
        CW%CDSC¤,RCRD2,15,S+1.0          51032.00 60 000361.21 EC    050753.00
        CW%CR¤,RCRD3,5,0                 51051.00 00 000120.00 00    050754.00
-
-       4.-BACKSPACE TAPE. CONTROL CODE 01111110
-       5.-EXECUTE FOLLOWING CONTROL WORD-WRITE
-
        CW%CDSC¤,RCRD4,5,S+1.0           51056.00 60 000121.21 EE    050755.00
        CW%CR¤,RCRD5,10,0                51063.00 00 000240.00 00    050756.00
-
-       6.-REWIND TAPE. CONTROL CODE 01011110
-       7.-EXECUTE FOLLOWING CONTROL WORDS-READ.
-
        CW%CDSC¤,TPRD2,10,S+1.0          51154.00 60 000241.21 F0    050757.00
        CW%CDSC¤,TPRD3,15,S+1.0          51166.00 60 000361.21 F1    050760.00
        CW%CDSC¤,TPRD4,5,S+1.0           51205.00 60 000121.21 F2    050761.00
        CW%CR¤,TPRD5,10,S+1.0            51212.00 00 000241.21 F3    050762.00
-
-       8.-TO CHECK TESTS, USE ABOVE SET OF CONTROL WORDS AGAIN
-          ONLY THIS TIME, PRINT READ IN AREA ON PRINTER.
-
-
-
```

```
-       TEST 3. TAPE MARK RECOGNITION TEST.
-
-       1.-LOCATE DESIRED DRIVE.
-       2.-REWIND TAPE. CONTROL CODE 01011110
-       3.-EXECUTE FOLLOWING CONTROL WORD-WRITE
-
        CW%CD¤,RCRD10,5,$+1.0      -SHOULD NOT CHAIN.      51075.00 20 000121.21 F4    050763.00
        CW%CR¤,RCRD10,5,0                                  51075.00 00 000120.00 00    050764.00
-
-       4.-WRITE A TAPE MARK. CONTROL CODE 01001111
-       5.-EXECUTE FOLLOWING CONTROL WORD-WRITE.
-
        CW%CR¤,RCRD11,5,0                                  51102.00 00 000120.00 00    050765.00
-
-       6.-REWIND TAPE. CONTROL CODE 01011110
-       7.-EXECUTE FOLLOWING CONTROL WORD-ONLY ONE RECORD
-         -SHOULD READ. TAPE MARK SHOULD CAUSE DISCONNET AT 6TH
-         -WORD.
-
        CW%CD¤,TPRD6,15,0                                  51224.00 20 000360.00 00    050766.00
-
-       8.-EXECUTE ABOVE CW WITH PRINTER WRITE TO OBSERVE RESULTS.
-
-
```

```
-       TEST 4.-BACKSPACE FILE TEST.
-
-       1.-LOCATE DESIRED DRIVE.
-       2.-REWIND TAPE. CONTROL CODE 01011110
-       3.-EXECUTE FOLLOWING CONTROL WORD-WRITE
-
        CW%CD¤,RCRD12,5,0                          51107.00 20 000120.00 00      050767.00
-
-       4.-WRITE A TAPE MARK. CONTROL CODE 01001111
-       5.-EXECUTE FOLLOWING CW - WRITE
-
        CW%CD¤,RCRD13,5,0                          51114.00 20 000120.00 00      050770.00
-
-       6.-BACKSPACE FILE. CONTROL CODE 01111111
-       7.-EXECUTE FOLLOWING CW-WRITE
-
        CW%CD¤,RCRD14,5,0                          51121.00 20 000120.00 00      050771.00
-
-       8.-REWIND TAPE. CONTROL CODE 01011110
-       9.-EXECUTE FOLLOWING CONTROL WORDS-READ.
-
        CW%CD¤,TPRD7,10,0                          51243.00 20 000240.00 00      050772.00
-
-
-       10.-EXECUTE FOLLOWING CW ON-PRINTER--PRINT.
-
        CW%CD¤,TPRD7,10,0                          51243.00 20 000240.00 00      050773.00
-
-
```

```
-       TEST 5 SPACE FILE TEST
-
-       1.-LOCATE DESIRED DRIVE.
-       2.-REWIND TAPE. CONTROL CODE 01011110
-       3.-EXECUTE FOLLOWING CONTROL WORD-WRITE
-
        CW%CD¤,RCRD15,5,0                                  51126.00 20 000120.00 00    050774.00
-
-       4.-WRITE A TAPE MARK. CONTROL CODE 01001111
-       5.-REWIND TAPE. CONTROL CODE 01011110
-       6.-SPACE FILE. CONTROL CODE 00111111
-       7.-EXECUTE FOLLOWING CW WRITE.
-
        CW%CD¤,RCRD16,5,0                                  51133.00 20 000120.00 00    050775.00
-
-       8.-REWIND TAPE. CONTROL CODE 01011110
-       9.-EXECUTE FOLLOWING CWS-READ.
-
        CW%CDSC¤,TPRD8,5,$+1,0                             51262.00 60 000121.21 FF    050776.00
        CW%CD¤,TPRD8+5,0,1,0          -SKIP TAPE MARK      51267.00 20 000020.00 00    050777.00
-
-       9A.-EXECUTE FOLLOWING CW-READ
-
        CW%CD¤,TPRD8+5,0,5,0                               51267.00 20 000120.00 00    051000.00
-
-       10.-EXECUTE FOLLOWING CW ON PRINTER. -WRITE-
-
        CW%CR¤,TPRD8+5,0,5,0                               51267.00 00 000120.00 00    051001.00
-
-
```

```
-       THE FOLLOWING GROUP OF CONTROL WORDS REPRODUCE
-       THIS PROGRAM USING TAPES AS A STORAGE DEVICE.
-
-       1.-LOCATE DESIRED DRIVE
-       2.-REWIND TAPE. CONTROL CODE 01011110
-       3.-EXECUTE FOLLOWING CONTROL WORDS-WRITE
-
        CW%CCR¤,IPLCW,1,$+1,0                          51003.00 40 000021.22 03     051002.00
IPLCW   CW%CD¤,START,END-START+1,0,0                   50000.00 20 070740.00 00     051003.00
-
-       4.-REWIND TAPE. CONTROL CODE 01011110
-
-       TAPE CAN BE USED AS A PROGRAM TAPE.
-       IPL FROM THIS TAPE WILL PRODUCE SAME DATA AS IF
-       BX-0-WERE LOADED FROM CARDS. TO TRUELY TEST TAPE,
-       CLEAR MEMORY AND IPL. RUN PRINTER TEST FOR A
-       DATA TEST.
-
-       ****TO CREATE A NEW BINARY DECK, USE ABOVE
-       CONTROL WORDS ON A PUNCH WRITE.****
        CNOP
```

TAPE TESTS DATA

TEST 1.

RCRDA	%8□DD%BU,8,8□,000,000,000,000,000,000,000,377	000	051004.00
		000	051004.10
		000	051004.20
		000	051004.30
		000	051004.40
		000	051004.50
		000	051004.60
		377	051004.70
	%8□DD%BU,8,8□,000,000,000,000,000,000,377,000	000	051005.00
		000	051005.10
		000	051005.20
		000	051005.30
		000	051005.40
		000	051005.50
		377	051005.60
		000	051005.70
	%8□DD%BU,8,8□,000,000,000,000,000,377,000,000	000	051006.00
		000	051006.10
		000	051006.20
		000	051006.30
		000	051006.40
		377	051006.50
		000	051006.60
		000	051006.70
	%8□DD%BU,8,8□,000,000,000,000,377,000,000,000	000	051007.00
		000	051007.10
		000	051007.20
		000	051007.30
		377	051007.40
		000	051007.50
		000	051007.60
		000	051007.70
	%8□DD%BU,8,8□,000,000,000,377,000,000,000,000	000	051010.00
		000	051010.10
		000	051010.20
		377	051010.30
		000	051010.40
		000	051010.50
		000	051010.60
		000	051010.70
	%8□DD%BU,8,8□,000,000,377,000,000,000,000,000	000	051011.00
		000	051011.10
		377	051011.20
		000	051011.30
		000	051011.40
		000	051011.50
		000	051011.60
		000	051011.70
	%8□DD%BU,8,8□,000,377,000,000,000,000,000,000	000	051012.00
		377	051012.10
		000	051012.20
		000	051012.30
		000	051012.40
		000	051012.50
		000	051012.60
		000	051012.70
	%8□DD%BU,8,8□,377,000,000,000,000,000,000,000	377	051013.00

```
                                                                                        000  051013.10
                                                                                        000  051013.20
                                                                                        000  051013.30
                                                                                        000  051013.40
                                                                                        000  051013.50
                                                                                        000  051013.60
                                                                                        000  051013.70
               %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,000                           000  051014.00
                                                                                        000  051014.10
                                                                                        000  051014.20
                                                                                        000  051014.30
                                                                                        000  051014.40
                                                                                        000  051014.50
                                                                                        000  051014.60
                                                                                        000  051014.70
               %8¤DD%BU,8,8¤,377,377,377,377,377,377,377,377                           377  051015.00
                                                                                        377  051015.10
                                                                                        377  051015.20
                                                                                        377  051015.30
                                                                                        377  051015.40
                                                                                        377  051015.50
                                                                                        377  051015.60
                                                                                        377  051015.70
               %8¤DD%BU,64,8¤,1252525252525252525252                 1252525252525252525252  051016.00
               %8¤DD%BU,64,8¤,0525252525252525252525                 0525252525252525252525  051017.00
      -
      -
      -        TEST 2.
      -
      RCRD1    %8¤DD%BU,8,8¤,000         -CHAR CONTROL BYTE FOR PRINTING.              000  051020.00
               %  AZ¤DD%BU,8,8¤,TEST 2. DATA AND BACKSPACE TESTZ                            051020.10
               %  AZ¤DD%BU,8,8¤,.THIS IS RECORD 1 - TEST TWO....Z                           051024.00
               %  AZ¤DD%BU,8,8¤,10 WORDS, CDSC..Z                                           051030.00
      -
      -
      RCRD2    %8¤DD%BU,8,8¤,000         -CHAR CONTROL BYTE FOR PRINTING.              000  051032.00
               %  AZ¤DD%BU,8,8¤,TEST 2. RECORD 2 - 15 WORDS, CDZ                            051032.10
               %  AZ¤DD%BU,8,8¤,SC...DATA FOLLOWS---ABCDEFGHIJKLZ                           051036.00
               %  AA¤DD%BU,8,8¤,MNOPQRSTUVWXYZ0123456789---------A                          051042.00
               %  AZ¤DD%BU,8,8¤,RECORD 3 IS BCKSP TEST. Z                                   051046.00
      -
      -
      RCRD3    %8¤DD%BU,8,8¤,000         -CHAR CONTROL BYTE FOR PRINTING.              000  051051.00
               %  AZ¤DD%BU,8,8¤,IF THIS PRINTS, BACKSPACE FAILEZ                            051051.10
               %  AZ¤DD%BU,8,8¤,D.......Z                                                   051055.00
      -
      -
      RCRD4    %8¤DD%BU,8,8¤,000         -CHAR CONTROL BYTE FOR PRINTING.              000  051056.00
               %  AZ¤DD%BU,8,8¤,TEST 2. BACKSPACE WORKED IF THIZ                            051056.10
               %  AZ¤DD%BU,8,8¤,S LINE 3Z                                                   051062.00
      -
      -
      RCRD5    %8¤DD%BU,8,8¤,000         -CHAR CONTROL BYTE FOR PRINTING.              000  051063.00
               %  AZ¤DD%BU,8,8¤,TEST 2. RECORD 4. 10 WORDS, CR.Z                            051063.10
               %  AZ¤DD%BU,8,8¤, THIS IS THE LAST RECORD OF TESTZ                           051067.00
               %  AZ¤DD%BU,8,8¤, 2..XXXXXXXXXXXXZ                                           051073.00
      -
      -        TEST 3.
      -
      -
      RCRD10   %8¤DD%BU,8,8¤,000         -CHAR CONTROL BYTE FOR PRINTING.              000  051075.00
               %  AZ¤DD%BU,8,8¤,TEST 3. TAPE MARK RECOGNITION.RZ                            051075.10
               %  AZ¤DD%BU,8,8¤,ECORD 1.Z                                                   051101.00
      -
      -
      RCRD11   %  AZ¤DD%BU,8,8¤,IF THIS PRINTS,TAPE MARK FAILED.Z                           051102.00
```

```
                %  AZ¤DD%BU,8,8¤,XXXXXXXXZ                                                    051106.00
                -
                -       TEST4
                -
                -
RCRD12          %8¤DD%BU,8,8¤,000       -CHAR CONTROL BYTE FOR PRINTING.            000    051107.00
                %  AZ¤DD%BU,8,8¤,TEST 4.BACKSPACE FILE TEST. RECZ                           051107.10
                %  AZ¤DD%BU,8,8¤,ORD 1...Z                                                  051113.00
                -
                -
RCRD13          %8¤DD%BU,8,8¤,000       -CHAR CONTROL BYTE FOR PRINTING.            000    051114.00
                %  AZ¤DD%BU,8,8¤,IF THIS PRINTS,BACKSPACE FILE FZ                           051114.10
                %  AZ¤DD%BU,8,8¤,AILED...Z                                                  051120.00
                -
                -
RCRD14          %8¤DD%BU,8,8¤,000       -CHAR CONTROL BYTE FOR PRINTING.            000    051121.00
                %  AZ¤DD%BU,8,8¤,TEST 4.BACKSPACE FILE TEST PASSZ                           051121.10
                %  AZ¤DD%BU,8,8¤,ED.......Z                                                 051125.00
                -
                -
                -       TEST 5.
                -
                -
RCRD15          %8¤DD%BU,8,8¤,000       -CHAR CONTROL BYTE FOR PRINTING.            000    051126.00
                %  AZ¤DD%BU,8,8¤,SPACE FILE,TEST 5, FAILED.XXXXXZ                           051126.10
                %  AZ¤DD%BU,8,8¤,XXXXXXXXZ                                                  051132.00
                -
                -
RCRD16          %8¤DD%BU,8,8¤,000       -CHAR CONTROL BYTE FOR PRINTING.            000    051133.00
                %  AZ¤DD%BU,8,8¤,TEST 5. SPACE FILE TEST PASSED.Z                           051133.10
                %  AZ¤DD%BU,8,8¤,.........Z                                                 051137.00
                -
                -
                -
```

```
-
-       TAPE TESTS READ IN AREA
-
-
-       TEST 1.
-
-
TPRD1   DR%BU,64,8¤,8       -8 WORDS-ALL ONES BYTES STARTS AT      10.00          051140.00
                            -BYTE 7 AND SHIFTS LEFT ONE BYTE
                            -FOR EACH WORD.
        DR%BU,64,8¤,2       -ALL ZEROS WORD                         2.00          051150.00
                            -ALL ONES WORD
        DR%BU,64,8¤,1       -10101....WORD                          1.00          051152.00
        DR%BU,64,8¤,1       -01010....WORD                          1.00          051153.00
-
-
-       TEST 2.
-
TPRD2   DR%BU,64,8¤,10                                             12.00          051154.00
TPRD3   DR%BU,64,8¤,15                                             17.00          051166.00
TPRD4   DR%BU,64,8¤,5                                               5.00          051205.00
TPRD5   DR%BU,64,8¤,10                                             12.00          051212.00
-
-
-       TEST 3.
-
-
TPRD6   DR%BU,64,8¤,15                                             17.00          051224.00
-
-
-       TEST 4.
-
-
TPRD7   DR%BU,64,8¤,15                                             17.00          051243.00
-
-
-       TEST 5.
-
TPRD8   DR%BU,64,8¤,10                                             12.00          051262.00
```

```
-
-       CONSOLE TEST
-
-
-       THIS TEST TESTS READ AND WRITE OPERATION
-       OF THE CONSOLE. CONTROL WORDS AND CONSTANS
-       ARE PROVIDED FOR WRITE OPERATIONS- CONTROL
-       WORDS AND RESERVED LOCATIONS FOR READ OPERATIONS
-
-
-            TEST ONE-TESTS WRITE OPERATION ON CNSL LTS
-
-                                 -TESTING WORD ONE
-
CNSL1   CW%CR¤,WORD1,1,0         -WORD ONE-BYTE NUMBER      51356.00 00 000020.00 00    051274.00
        CW%CR¤,WORD1+1,,1,0      -WORD ONE-ALL ONES         51357.00 00 000020.00 00    051275.00
        CW%CR¤,WORD1+2,,1,0      -WORD ONE-ALL ZEROS        51360.00 00 000020.00 00    051276.00
        CW%CR¤,WORD1+3,,1,0      -WORD ONE-ONES AND ZEROS   51361.00 00 000020.00 00    051277.00
-                                -         BYTE PATTERN
-
-
-                                 -TESTING WORD TWO
-
        CW%CR¤,WORD1+3,,2,0      -WORD TWO-EIGHTS           51361.00 00 000040.00 00    051300.00
        CW%CR¤,WORD1+4,,2,0      -WORD TWO-SEVENS           51362.00 00 000040.00 00    051301.00
        CW%CR¤,WORD1+1,,2,0      -WORD TWO-BLANK            51357.00 00 000040.00 00    051302.00
-
-
-                                 -TESTING WORD THREE
-
        CW%CR¤,WORD1-1,,3,0      -WORD THREE-ALL ONES       51355.00 00 000060.00 00    051303.00
-
-
-            TEST TWO-TESTS CF ON A WRITE OPERATION
-
                                 -CHAINING TWO WORDS
CNSL2   CW%CCR¤,WORD1+3,,1,CNSL2+1.  -WORD ONE-BYTE PATTERN 51361.00 40 000021.22 C5    051304.00
        CW%CR¤,WORD1+4,,1,0      -WORD TWO-ALL EIGHTS       51362.00 00 000020.00 00    051305.00
-
-
-                                 -CHAINING THREE WORDS
-
        CW%CCR¤,WORD1+1,,1,CNSL2+3.  -WORD ONE-ALL ONES     51357.00 40 000021.22 C7    051306.00
        CW%CCR¤,WORD1+4,,1,CNSL2+4.  -WORD TWO-ALL EIGHTS   51362.00 40 000021.22 C8    051307.00
        CW%CR¤,WORD1+2,,1,0      -WORD THREE-ALL ZEROS      51360.00 00 000020.00 00    051310.00
-
-
-            TEST THREE-TESTS READ OPERATION FROM CNSL SWITCHES
-
CNSL3   CW%CR¤,WORD2,1,0         -READ ONE WORD-DATA        51364.00 00 000020.00 00    051311.00
                                 -WILL BE IN WORD 2
        CW%CR¤,WORD2+1,0,2,0     -READ TWO WORDS-DATA       51365.00 00 000040.00 00    051312.00
                                 -WILL BEGIN AT WORD 2+1.0
        CW%CR¤,WORD2+3,0,3,0     -READ THREE WORDS-DATA     51367.00 00 000060.00 00    051313.00
                                 -WILL BEGIN AT WORD 2+3.0
-
-       USE THE SAME CONTROL WORDS AND WRITE
-       OUT DATA FOR CHECKING.
-
-
-            TEST FOUR-TESTS READ OPERATION FROM
                                 -CNSL SW AND CF
```

```
;       REPEAT THIS TEST USING SEVERAL ANALOG TO DIGITAL
;       POT SETTINGS....
;
CNSL4   CW%CCR¤,WORD3,1,CNSL4+1  ;CHAINING TWO WORD          51372.00 40 000021.22 CD    051314.00
        CW%CR¤,WORD3+1.,2,0                                  51373.00 00 000040.00 00    051315.00
;
        CW%CCR¤,WORD4,1,CNSL4+3,0  ;CHAINING THREE WORDS     51375.00 40 000021.22 CF    051316.00
        CW%CCR¤,WORD4+1.0,1,CNSL4+4.0  ;DATA WILL BEGIN AT WORD 4  51376.00 40 000021.22 D0  051317.00
        CW%CR¤,WORD4+2.0,1,0                                 51377.00 00 000020.00 00    051320.00
;
;       USE THE SAME CONTROL WORDS AND WRITE
;       OUT DATA FOR CHECKING.
;
```

```
-
-              TEST FIVE-TESTS TYPEWRITER WRITE OPERATION
-                              -AND END CODE
-
CNSL5   CW%CR¤,TYPW1-3.0,4,0    -TYPES ONE WORD                 51400.00 00 000100.00 00    051321.00
                                -WHICH IS,CR,TYP TST
        CW%CR¤,TYPW2-3.0,5,0    -END CODE TEST-TYPE             51405.00 00 000120.00 00    051322.00
                                -TWO WORDS AND END
                                -WORDS ARE, CR,END
                                -CODE TEST,END
-
        CW%CR¤,TYPW3-3.0,14,0   -TYPE ONE LINE                  51413.00 00 000340.00 00    051323.00
                                -WHICH IS-
                                -CR, A B C D E F G
                                -H I J K L M N O
                                -P Q R S T U V W X
                                -Y Z... 1 2 3 4 5 6
                                -7 8 9 0 BS END CR
-
-
-              TEST SIX-TESTS TYPEWRITER WRITE
                              -OPERATION AND CF
-
CNSL6   CW%CCR¤,TYPW4-3.0,4,CNSL6+1.  -CHAINS TWO WORDS         51431.00 40 000101.22 D5    051324.00
        CW%CR¤,TYPW4+2,1,0      -WORDS ARE-CHAINING             51434.02 00 000020.00 00    051325.00
                                -TEST S,ON FAILURE-FAIL
-
        CW%CCR¤,TYPW4-3.,4,CNSL6+3.  -CHAINS THREE WORDS        51431.00 40 000101.22 D7    051326.00
        CW%CCR¤,TYPW4+2.,1,CNSL6+4.  -WORDS ARE-CHAINING        51436.00 40 000021.22 D8    051327.00
        CW%CR¤,TYPW4+4.,1,0     -TEST SUCCESS...ON              51440.00 00 000020.00 00    051330.00
-                               -FAILURE-FAIL
-
-              TEST SEVEN-TESTS TYPWRITER WRITE
                              -OPERATION MF AND CF
-
CNSL7   CW%CD¤,TYPW5-3.,9,0     -WRITE THREE WORDS              51441.00 20 000220.00 00    051331.00
-                               -WITH END CODE
-                               -BETWEEN WORDS
-                               -WORDS ARE-MLTPLE
-                               -TEST SUCCESSFUL
-                               -ON FAILURE-FAIL
-
        CW%CDSC¤,TYPW6-3.,4,CNSL7+2.  -WRITE TWO WORDS ON TYPEWRITER  51452.00 60 000101.22 DB  051332.00
        CW%CR¤,TYPW6+1.,4,0     -THE END CODE AND COUNT ZERK    51456.00 00 000100.00 00    051333.00
                                -OCCUR SIMULTANEOUSLY
-
-
-              TEST EIGHT-TESTS TYPEWRITER
                              -READ OPERATION
-
-       THE FOLLOWING CWS READ 40 CHARACTERS TYPED IN
-
CNSL8   CW%CR¤,TYPR1,8,0                                        51465.00 00 000200.00 00    051334.00
-
-       THE FOLLOWING CWS READ 40 CHARACTERS TYPED IN----
-       CHAINS AND READS 32 MORE..
-
        CW%CCR¤,TYPR2,8,$+1.                                    51475.00 40 000201.22 DE    051335.00
        CW%CR¤,TYPR3,4,0                                        51505.00 00 000100.00 00    051336.00
-
-       USE THE SAME CONTROL WORDS AND WRITE
-       OUT DATA FOR CHECKING.
```

```
-
-       THE FOLLOWING CWS TEST MF AND CF
-       WHEN IN MF MODE AND AN END CODE IS
-       ENTERED FROM THE CONSOLE TYPEWRITER THE
-       NEXT 3 WORDS WILL BE READ FROM CNSL SWITCHES.
-
-       FOR ONE TEST-COUNT CHARACTERS AND
-       HAVE THE END CODE AND COUNT ZERO OCCUR
-       SIMULTANEOUSLY.....
-
        CW%CD¤,TYPR4,8,0          -READ IN MF MODE              51511.00 20 000200.00 00    051337.00
        CW%CD¤,TYPR5,25,0         -READ IN MF MODE              51521.00 20 000620.00 00    051340.00
        CW%CDSC¤,TYPR7,10,+-2.    -MF AND CF SIM-TYPE 8 CHAR    51556.00 60 000257.77 FE    051341.00 C
-
        CW%CDSC¤,TYPR8,20,CNSL8+8,0  -MORE MF AND CF CW         51570.00 60 000501.22 E4    051342.00
        CW%CCR¤,TYPR9,20,CNSL8+9,0                              51614.00 40 000501.22 E5    051343.00
        CW%CR¤,TYPR10,20,0                                      51640.00 00 000500.00 00    051344.00
-
-
-            TEST NINE -TESTS READ OPERATION
-                          -WITH SF,MF,AND CF.
-
        -THE FOLLOWING CWS ARE FOR READING
        -WITH MF, SF, AND CF.
-
-       EXECUTE THE FOLLOWING CW TO TEST CF AND SF.
-
CNSL9   CW%SCCR¤,TYPR11,5,CNSL9+1,0  -SF AND CF TEST, SKIP 5  51664.00 50 000121.22 E6    051345.00
-
        CW%CR¤,TYPR12,3,0         -TYPE 3 WORDS                 51667.00 00 000060.00 00    051346.00
-
-       CW TO PRINT OUT DATA ON CONSOLE.
-
        CW%CR¤,TYPR12-3,,6,0                                    51664.00 00 000140.00 00    051347.00
        CW%CR¤,TYPR11,5,0         -CW FOR TEST SF AND CF        51664.00 00 000120.00 00    051350.00
-
-
-       EXECUTE THE FOLLOWING CW TO TEST CF, SF, AND MF.
-
        CW%SCDSC¤,TYPR13,4,$+1.      -SF CF, AND MF TEST        51672.00 70 000101.22 EA    051351.00
        CW%CD¤,TYPR14,5,0         -DISREGARDS END CODES         51676.00 20 000120.00 00    051352.00
-
-       CW TO PRINT OUT DATA ON CONSOLE.
-
        CW%CD¤,TYPR13,4,0         -CW FOR TEST SF,CF, AND MF    51672.00 20 000100.00 00    051353.00
        CW%CD¤,TYPR14-3,,6,0                                    51673.00 20 000140.00 00    051354.00
-
```

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   -
          DR%BU,64,8¤,1                                                  1.00                     051355.00
WORD1     %8¤DD%BU,8,8¤,000,001,002,003,004,005,006,007  -BYTE NUMBER WD                   000    051356.00
                                                                                           001    051356.10
                                                                                           002    051356.20
                                                                                           003    051356.30
                                                                                           004    051356.40
                                                                                           005    051356.50
                                                                                           006    051356.60
                                                                                           007    051356.70
          %8¤DD%BU,8,8¤,377,377,377,377,377,377,377,377  -ALL ONES WORD                    377    051357.00
                                                                                           377    051357.10
                                                                                           377    051357.20
                                                                                           377    051357.30
                                                                                           377    051357.40
                                                                                           377    051357.50
                                                                                           377    051357.60
                                                                                           377    051357.70
          DD%BU,64,8¤,0                                 -ALL ZEROS WORD      0000000000000000000000    051360.00
          %8¤DD%BU,8,8¤,377,000,377,000,377,000,377,000  -BYTE PATTERN                     377    051361.00
                                                                                           000    051361.10
                                                                                           377    051361.20
                                                                                           000    051361.30
                                                                                           377    051361.40
                                                                                           000    051361.50
                                                                                           377    051361.60
                                                                                           000    051361.70
          %8¤DD%BU,8,8¤,210,210,210,210,210,210,210,210  -ALL EIGHTS                       210    051362.00
                                                                                           210    051362.10
                                                                                           210    051362.20
                                                                                           210    051362.30
                                                                                           210    051362.40
                                                                                           210    051362.50
                                                                                           210    051362.60
                                                                                           210    051362.70
          %8¤DD%BU,8,8¤,167,167,167,167,167,167,167,167  -ALL SEVENS                       167    051363.00
                                                                                           167    051363.10
                                                                                           167    051363.20
                                                                                           167    051363.30
                                                                                           167    051363.40
                                                                                           167    051363.50
                                                                                           167    051363.60
                                                                                           167    051363.70
   -
WORD2     DR%BU,64,8¤,6                                 -READ OPERATION      6.00                 051364.00
WORD3     DR%BU,64,8¤,3                                 -DATA RESERVATIO     3.00                 051372.00
WORD4     DR%BU,64,8¤,3                                                      3.00                 051375.00
TYPW0     DR%BU,64,8¤,3                 -RESERVES LOCATIONS FOR              3.00                 051400.00
                                        -FIRST THREE WORDS IN
                                        -A TYPEWRITER OPERATION
TYPW1     %16¤DD%BU,8,8¤,FD,53,5D,4B,00,53,51,53  -CR,TYP TEST                             375    051403.00
                                                                                           123    051403.10
                                                                                           135    051403.20
                                                                                           113    051403.30
                                                                                           000    051403.40
                                                                                           123    051403.50
                                                                                           121    051403.60
                                                                                           123    051403.70
          %16¤DD%BU,8,8¤,37,2D,3D,43,35,33,00,00   -FAILED                                 067    051404.00
                                                                                           055    051404.10
                                                                                           075    051404.20
                                                                                           103    051404.30
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```
                                                                              065   051404.40
                                                                              063   051404.50
                                                                              000   051404.60
                                                                              000   051404.70
         DR%BU,64,8¤,3                -DATA RESERVATION              3.00           051405.00
TYPW2    %16¤DD%BU,8,8¤,FD,35,47,33,00,31,49,33  -END COD                     375   051410.00
                                                                              065   051410.10
                                                                              107   051410.20
                                                                              063   051410.30
                                                                              000   051410.40
                                                                              061   051410.50
                                                                              111   051410.60
                                                                              063   051410.70
         %16¤DD%BU,8,8¤,35,00,53,35,51,53,00,FE  -E TEST, END                 065   051411.00
                                                                              000   051411.10
                                                                              123   051411.20
                                                                              065   051411.30
                                                                              121   051411.40
                                                                              123   051411.50
                                                                              000   051411.60
                                                                              376   051411.70
         %16¤DD%BU,8,8¤,37,2D,3D,43,35,33,00,00  -FAILED                      067   051412.00
                                                                              055   051412.10
                                                                              075   051412.20
                                                                              103   051412.30
                                                                              065   051412.40
                                                                              063   051412.50
                                                                              000   051412.60
                                                                              000   051412.70
         DR%BU,64,8¤,3                -DATA RESERVATION              3.00           051413.00
TYPW3    %16¤DD%BU,8,8¤,FD,2D,00,2F,00,31,00,33  -CR, A B C D                 375   051416.00
                                                                              055   051416.10
                                                                              000   051416.20
                                                                              057   051416.30
                                                                              000   051416.40
                                                                              061   051416.50
                                                                              000   051416.60
                                                                              063   051416.70
         %16¤DD%BU,8,8¤,00,35,00,37,00,39,00,3B      -E F G H                 000   051417.00
                                                                              065   051417.10
                                                                              000   051417.20
                                                                              067   051417.30
                                                                              000   051417.40
                                                                              071   051417.50
                                                                              000   051417.60
                                                                              073   051417.70
         %16¤DD%BU,8,8¤,00,3D,00,3F,00,41,00,43      -I J K L                 000   051420.00
                                                                              075   051420.10
                                                                              000   051420.20
                                                                              077   051420.30
                                                                              000   051420.40
                                                                              101   051420.50
                                                                              000   051420.60
                                                                              103   051420.70
         %16¤DD%BU,8,8¤,00,45,00,47,00,49,00,4B      -M N O P                 000   051421.00
                                                                              105   051421.10
                                                                              000   051421.20
                                                                              107   051421.30
                                                                              000   051421.40
                                                                              111   051421.50
                                                                              000   051421.60
                                                                              113   051421.70
         %16¤DD%BU,8,8¤,00,4D,00,4F,00,51,00,53      -Q R S T                 000   051422.00
                                                                              115   051422.10
                                                                              000   051422.20
```

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                                                                                117  051422.30
                                                                                000  051422.40
                                                                                121  051422.50
                                                                                000  051422.60
                                                                                123  051422.70
         %16¤DD%BU,8,8¤,00,55,00,57,00,59,00,58      -U V W X                   000  051423.00
                                                                                125  051423.10
                                                                                000  051423.20
                                                                                127  051423.30
                                                                                000  051423.40
                                                                                131  051423.50
                                                                                000  051423.60
                                                                                133  051423.70
         %16¤DD%BU,8,8¤,00,5D,00,5F,74,74,74,00      -Y Z...                    000  051424.00
                                                                                135  051424.10
                                                                                000  051424.20
                                                                                137  051424.30
                                                                                164  051424.40
                                                                                164  051424.50
                                                                                164  051424.60
                                                                                000  051424.70
         %16¤DD%BU,8,8¤,00,62,00,64,00,66,00,68      -1 2 3 4                   000  051425.00
                                                                                142  051425.10
                                                                                000  051425.20
                                                                                144  051425.30
                                                                                000  051425.40
                                                                                146  051425.50
                                                                                000  051425.60
                                                                                150  051425.70
         %16¤DD%BU,8,8¤,00,6A,00,6C,00,6E,00,70      -5 6 7 8                   000  051426.00
                                                                                152  051426.10
                                                                                000  051426.20
                                                                                154  051426.30
                                                                                000  051426.40
                                                                                156  051426.50
                                                                                000  051426.60
                                                                                160  051426.70
         %16¤DD%BU,8,8¤,00,72,00,60,00,00,FC,FD      -9 0  BS, CR               000  051427.00
                                                                                162  051427.10
                                                                                000  051427.20
                                                                                140  051427.30
                                                                                000  051427.40
                                                                                000  051427.50
                                                                                374  051427.60
                                                                                375  051427.70
         %16¤DD%BU,8,8¤,35,47,33,FD,00,00,00,00  -END,CR                        065  051430.00
                                                                                107  051430.10
                                                                                063  051430.20
                                                                                375  051430.30
                                                                                000  051430.40
                                                                                000  051430.50
                                                                                000  051430.60
                                                                                000  051430.70
         DR%BU,64,8¤,3             -DATA RESERVATION              3.00               051431.00
 TYPW4   %16¤DD%BU,8,8¤,FD,31,3B,2D,3D,47,3D,47  -CHAININ                       375  051434.00
                                                                                061  051434.10
                                                                                073  051434.20
                                                                                055  051434.30
                                                                                075  051434.40
                                                                                107  051434.50
                                                                                075  051434.60
                                                                                107  051434.70
         %16¤DD%BU,8,8¤,37,2D,3D,43,35,33,00,00  -FAIL                          067  051435.00
                                                                                055  051435.10
                                                                                075  051435.20
                                                                                103  051435.30
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                                                                                   065   051435.40
                                                                                   063   051435.50
                                                                                   000   051435.60
                                                                                   000   051435.70
              %16¤DD%BU,8,8¤,39,00,53,35,51,53,00,51  -G TEST S                    071   051436.00
                                                                                   000   051436.10
                                                                                   123   051436.20
                                                                                   065   051436.30
                                                                                   121   051436.40
                                                                                   123   051436.50
                                                                                   000   051436.60
                                                                                   121   051436.70
              %16¤DD%BU,8,8¤,37,2D,3D,43,35,33,00,00  -FAIL                        067   051437.00
                                                                                   055   051437.10
                                                                                   075   051437.20
                                                                                   103   051437.30
                                                                                   065   051437.40
                                                                                   063   051437.50
                                                                                   000   051437.60
                                                                                   000   051437.70
              %16¤DD%BU,8,8¤,55,31,31,35,51,51,74,74  -UCCESS..                    125   051440.00
                                                                                   061   051440.10
                                                                                   061   051440.20
                                                                                   065   051440.30
                                                                                   121   051440.40
                                                                                   121   051440.50
                                                                                   164   051440.60
                                                                                   164   051440.70
        -
              DR%BU,64,8¤,3              -DATA RESERVATION              3.00             051441.00
        TYPW5 %16¤DD%BU,8,8¤,FD,45,43,53,48,43,35,FE  -CR, MLTPLE, END             375   051444.00
                                                                                   105   051444.10
                                                                                   103   051444.20
                                                                                   123   051444.30
                                                                                   110   051444.40
                                                                                   103   051444.50
                                                                                   065   051444.60
                                                                                   376   051444.70
        -
              DR%BU,64,8¤,3              -DATA RESERVATION              3.00             051445.00
              %16¤DD%BU,8,8¤,53,35,51,53,00,51,55,31  -TEST SUC                    123   051450.00
                                                                                   065   051450.10
                                                                                   121   051450.20
                                                                                   123   051450.30
                                                                                   000   051450.40
                                                                                   121   051450.50
                                                                                   125   051450.60
                                                                                   061   051450.70
              %16¤DD%BU,8,8¤,31,35,51,51,37,55,43,74  -CESSFUL.                    061   051451.00
                                                                                   065   051451.10
                                                                                   121   051451.20
                                                                                   121   051451.30
                                                                                   067   051451.40
                                                                                   125   051451.50
                                                                                   103   051451.60
                                                                                   164   051451.70
        -
              DR%BU,64,8¤,3              -DATA RESERVATION              3.00             051452.00
        TYPW6 %16¤DD%BU,8,8¤,FD,45,31,00,53,51,53,FE  -CR, MC IST, END             375   051455.00
                                                                                   105   051455.10
                                                                                   061   051455.20
                                                                                   000   051455.30
                                                                                   123   051455.40
                                                                                   121   051455.50
                                                                                   123   051455.60
                                                                                   376   051455.70
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         DR%BU,64,8¤,3                                          3.00               051456.00
         %16¤DD%BU,8,8¤,51,55,31,31,35,51,FE,5F  ←SUCCESS,END,Z              121  051461.00
                                                                            125  051461.10
                                                                            061  051461.20
                                                                            061  051461.30
                                                                            065  051461.40
                                                                            121  051461.50
                                                                            376  051461.60
                                                                            137  051461.70
         DR%BU,64,8¤,2                                          2.00               051462.00
         %16¤DD%BU,8,8¤,37,2D,3D,43,35,33,00,00   ←FAILEED                  067  051464.00
                                                                            055  051464.10
                                                                            075  051464.20
                                                                            103  051464.30
                                                                            065  051464.40
                                                                            063  051464.50
                                                                            000  051464.60
                                                                            000  051464.70
TYPR1    DR%BU,64,8¤,8            ←RESERVED FOR                10.00               051465.00
TYPR2    DR%BU,64,8¤,8            ←TYPEWRITER                  10.00               051475.00
TYPR3    DR%BU,64,8¤,4            ←READ TESTS                   4.00               051505.00
TYPR4    DR%BU,64,8¤,8                                         10.00               051511.00
TYPR5    DR%BU,64,8¤,25                                        31.00               051521.00
TYPR6    DR%BU,64,8¤,4                                          4.00               051552.00
TYPR7    DR%BU,64,8¤,10                                        12.00               051556.00
TYPR8    DR%BU,64,8¤,20                                        24.00               051570.00
TYPR9    DR%BU,64,8¤,20                                        24.00               051614.00
TYPR10   DR%BU,64,8¤,20                                        24.00               051640.00
TYPR11   DR%BU,64,8¤,3                                          3.00               051664.00
TYPR12   DR%BU,64,8¤,3                                          3.00               051667.00
TYPR13   DR%BU,64,8¤,4                                          4.00               051672.00
TYPR14   DR%BU,64,8¤,5                                          5.00               051676.00
←
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-
-       TYPEWRITER TESTS
-           TEST ONE-BACKSPACE TEST
-           TEST TWO-RIPPLE TEST
-           TEST THREE-BALL MOVEMENT TEST
-       TEST FOUR - ALL CHARACTER PRINT
-
-
-       BACKSPACE TEST LOOP
-
TWT1   CW%CCR¤,BST1,11,TWT1+1.          -BACKSPACE TEST      52041.00 40 000261.23 C4    051703.00
       CW%CCR¤,BST1+3,,8,TWT1+2.        -TYPES 3 LINES       52044.00 40 000201.23 C5    051704.00
       CW%CDSC¤,BST1+3,,8,TWT1          -LOOP                52044.00 60 000201.23 C3    051705.00
-
-
-       RIPPLE TEST
-
-                                        -RIPPLE 26 LINES
TWT2   CW%CCR¤,RIPL,14,TWT2+1.          -AB...               52054.00 40 000341.23 C7    051706.00
       CW%CCR¤,RIPL0,1,TWT2+2.                               52057.00 40 000021.23 C8    051707.00
       CW%CCR¤,RIPL3,10,TWT2+3.         -BC...               52075.00 40 000241.23 C9    051710.00
       CW%CCR¤,RIPL0,1,TWT2+4.                               52057.00 40 000021.23 CA    051711.00
       CW%CCR¤,RIPL2+2,,3,TWT2+5.       -CD...               52072.00 40 000061.23 CB    051712.00
       CW%CCR¤,RIPL1,7,TWT2+6.                               52060.00 40 000161.23 CC    051713.00
       CW%CCR¤,RIPL0,1,TWT2+7.                               52057.00 40 000021.23 CD    051714.00
       CW%CCR¤,RIPL4+2,,3,TWT2+8.       -DE...               52107.00 40 000061.23 CE    051715.00
       CW%CCR¤,RIPL3,7,TWT2+9.                               52075.00 40 000161.23 CF    051716.00
       CW%CCR¤,RIPL0,1,TWT2A                                 52057.00 40 000021.23 D0    051717.00
TWT2A  CW%CCR¤,RIPL1+7,,6,TWT2A+1.      -EF...               52067.00 40 000141.23 D1    051720.00
       CW%CCR¤,RIPL1,4,TWT2A+2.                              52060.00 40 000101.23 D2    051721.00
       CW%CCR¤,RIPL0,1,TWT2A+3.                              52057.00 40 000021.23 D3    051722.00
       CW%CCR¤,RIPL3+7,,6,TWT2A+4.      -FG...               52104.00 40 000141.23 D4    051723.00
       CW%CCR¤,RIPL3,4,TWT2A+5.                              52075.00 40 000101.23 D5    051724.00
       CW%CCR¤,RIPL0,1,TWT2A+6.                              52057.00 40 000021.23 D6    051725.00
       CW%CCR¤,RIPL1+4,,9,TWT2A+7.      -GH...               52064.00 40 000221.23 D7    051726.00
       CW%CCR¤,RIPL1,1,TWT2A+8.                              52060.00 40 000021.23 D8    051727.00
       CW%CCR¤,RIPL0,1,TWT2A+9.                              52057.00 40 000021.23 D9    051730.00
       CW%CCR¤,RIPL3+4,,9,TWT2B         -HI...               52101.00 40 000221.23 DA    051731.00
TWT2B  CW%CCR¤,RIPL3,1,TWT2B+1.                              52075.00 40 000021.23 DB    051732.00
       CW%CCR¤,RIPL0,1,TWT2B+2.                              52057.00 40 000021.23 DC    051733.00
       CW%CCR¤,RIPL1+1,,10,TWT2B+3.     -IJ...               52061.00 40 000241.23 DD    051734.00
       CW%CCR¤,RIPL0,1,TWT2B+4.                              52057.00 40 000021.23 DE    051735.00
       CW%CCR¤,RIPL3+1,,10,TWT2B+5.     -JK...               52076.00 40 000241.23 DF    051736.00
       CW%CCR¤,RIPL0,1,TWT2B+6.                              52057.00 40 000021.23 E0    051737.00
       CW%CCR¤,RIPL2+3,,2,TWT2B+7.      -KL...               52073.00 40 000041.23 E1    051740.00
       CW%CCR¤,RIPL1,8,TWT2B+8.                              52060.00 40 000201.23 E2    051741.00
       CW%CCR¤,RIPL0,1,TWT2B+9.                              52057.00 40 000021.23 E3    051742.00
       CW%CCR¤,RIPL4+3,,2,TWT2C         -LM...               52110.00 40 000041.23 E4    051743.00
TWT2C  CW%CCR¤,RIPL3,8,TWT2C+1.                              52075.00 40 000201.23 E5    051744.00
       CW%CCR¤,RIPL0,1,TWT2C+2.                              52057.00 40 000021.23 E6    051745.00
       CW%CCR¤,RIPL2,5,TWT2C+3.         -MN...               52070.00 40 000121.23 E7    051746.00
       CW%CCR¤,RIPL1,5,TWT2C+4.                              52060.00 40 000121.23 E8    051747.00
       CW%CCR¤,RIPL0,1,TWT2C+5.                              52057.00 40 000021.23 E9    051750.00
       CW%CCR¤,RIPL4,5,TWT2C+6.         -NO...               52105.00 40 000121.23 EA    051751.00
       CW%CCR¤,RIPL3,5,TWT2C+7.                              52075.00 40 000121.23 EB    051752.00
       CW%CCR¤,RIPL0,1,TWT2C+8.                              52057.00 40 000021.23 EC    051753.00
       CW%CCR¤,RIPL1+5,,8,TWT2C+9.      -OP...               52065.00 40 000201.23 ED    051754.00
       CW%CCR¤,RIPL1,2,TWT2D                                 52060.00 40 000041.23 EE    051755.00
TWT2D  CW%CCR¤,RIPL0,1,TWT2D+1.                              52057.00 40 000021.23 EF    051756.00
       CW%CCR¤,RIPL3+5,,8,TWT2D+2.      -PQ...               52102.00 40 000201.23 F0    051757.00
       CW%CCR¤,RIPL3,2,TWT2D+3.                              52075.00 40 000041.23 F1    051760.00
       CW%CCR¤,RIPL0,1,TWT2D+4.                              52057.00 40 000021.23 F2    051761.00
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                CW%CCR¤,RIPL1+2.,10,TWT2D+5.    -QR...      52062.00 40 000241.23 F3   051762.00
                CW%CCR¤,RIPL0,1,TWT2D+6.                    52057.00 40 000021.23 F4   051763.00
                CW%CCR¤,RIPL3+2.,10,TWT2D+7.    -RS...      52077.00 40 000241.23 F5   051764.00
                CW%CCR¤,RIPL0,1,TWT2D+8.                    52057.00 40 000021.23 F6   051765.00
                CW%CCR¤,RIPL2+4.,1,TWT2D+9.     -ST...      52074.00 40 000021.23 F7   051766.00
                CW%CCR¤,RIPL1,9,TWT2E                       52060.00 40 000221.23 F8   051767.00
TWT2E           CW%CCR¤,RIPL0,1,TWT2E+1.                    52057.00 40 000021.23 F9   051770.00
                CW%CCR¤,RIPL4+4.,1,TWT2E+2.     -TU...      52111.00 40 000021.23 FA   051771.00
                CW%CCR¤,RIPL3,9,TWT2E+3.                    52075.00 40 000221.23 FB   051772.00
                CW%CCR¤,RIPL0,1,TWT2E+4.                    52057.00 40 000021.23 FC   051773.00
                CW%CCR¤,RIPL2+1.,4,TWT2E+5.     -UV...      52071.00 40 000101.23 FD   051774.00
                CW%CCR¤,RIPL1,6,TWT2E+6.                    52060.00 40 000141.23 FE   051775.00
                CW%CCR¤,RIPL0,1,TWT2E+7.                    52057.00 40 000021.23 FF   051776.00
                CW%CCR¤,RIPL4+1.,4,TWT2E+8.     -VW...      52106.00 40 000101.24 00   051777.00
                CW%CCR¤,RIPL3,6,TWT2E+9.                    52075.00 40 000141.24 01   052000.00
                CW%CCR¤,RIPL0,1,TWT2F                       52057.00 40 000021.24 02   052001.00
TWT2F           CW%CCR¤,RIPL1+6.,7,TWT2F+1.     -WX...      52066.00 40 000161.24 03   052002.00
                CW%CCR¤,RIPL1,3,TWT2F+2.                    52060.00 40 000061.24 04   052003.00
                CW%CCR¤,RIPL0,1,TWT2F+3                     52057.00 40 000021.24 05   052004.00
                CW%CCR¤,RIPL3+6.,7,TWT2F+4.     -XY...      52103.00 40 000161.24 06   052005.00
                CW%CCR¤,RIPL3,3,TWT2F+5.                    52075.00 40 000061.24 07   052006.00
                CW%CCR¤,RIPL0,1,TWT2F+6.                    52057.00 40 000021.24 08   052007.00
                CW%CCR¤,RIPL1+3.,10,TWT2F+7.    -YZ..       52063.00 40 000241.24 09   052010.00
                CW%CCR¤,RIPL0,1,TWT2F+8.                    52057.00 40 000021.24 0A   052011.00
                CW%CCR¤,RIPL3+3.,10,TWT2F+9.    -ZA..       52100.00 40 000241.24 0B   052012.00
                CW%CR¤,RIPL5,4,0                            52112.00 00 000100.00 00   052013.00
-
-
-       BALL MOVEMENT TEST LOOP
-
TWT3            CW%CCR¤,BMT0,15,TWT3+1.     -BALL MOVEMENT TEST
                CW%CCR¤,BMT1,12,TWT3+2.       -PRINTS 10-44 CHAR-   52025.00 40 000301.24 0E   052015.00
                CW%CCR¤,BMT1,12,TWT3+3.       -ACTER LINES AND      52025.00 40 000301.24 0F   052016.00
                CW%CCR¤,BMT1,12,TWT3+4.       -ALL CHARACTERS       52025.00 40 000301.24 10   052017.00
                CW%CDSC¤,BMT1,12,TWT3         -LOOP                 52025.00 60 000301.24 0C   052020.00
-
-       TEST FOUR
-
-       EXECUTE THIS CONTROL WORD FOR AN ALL
-       CHARACTER PRINT
-
                CW%CR¤,ALLC,27,0                            52116.00 00 000660.00 00   052021.00
-
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-
-       TYPEWRITER TEST DATA
-
-
BMT0    DR%BU,64,8¤,3                                -RESERVE 3 LOC.        3.00             052022.00
BMT1    %16¤DD%BU,8,8¤,FD,70,2F,60,3F,50,4F,40        -CR,8B0JSRK                       375    052025.00
                                                                                        160    052025.10
                                                                                        057    052025.20
                                                                                        140    052025.30
                                                                                        077    052025.40
                                                                                        120    052025.50
                                                                                        117    052025.60
                                                                                        100    052025.70
        %16¤DD%BU,8,8¤,5F,30,6F,20,27,68,37,58        -2C7  4FW                         137    052026.00
                                                                                        060    052026.10
                                                                                        157    052026.20
                                                                                        040    052026.30
                                                                                        047    052026.40
                                                                                        150    052026.50
                                                                                        067    052026.60
                                                                                        130    052026.70
        %16¤DD%BU,8,8¤,47,48,57,38,67,28,77,71        -NOVG3, 8                         107    052027.00
                                                                                        110    052027.10
                                                                                        127    052027.20
                                                                                        070    052027.30
                                                                                        147    052027.40
                                                                                        050    052027.50
                                                                                        167    052027.60
                                                                                        161    052027.70
        %16¤DD%BU,8,8¤,76,61,66,51,56,41,46,31        --03SVKNC                         166    052030.00
                                                                                        141    052030.10
                                                                                        146    052030.20
                                                                                        121    052030.30
                                                                                        126    052030.40
                                                                                        101    052030.50
                                                                                        106    052030.60
                                                                                        061    052030.70
        %16¤DD%BU,8,8¤,36,21,26,69,6E,59,5E,49        -F+/47WZO                         066    052031.00
                                                                                        041    052031.10
                                                                                        046    052031.20
                                                                                        151    052031.30
                                                                                        156    052031.40
                                                                                        131    052031.50
                                                                                        136    052031.60
                                                                                        111    052031.70
        %16¤DD%BU,8,8¤,4E,39,3E,29,2E,00,00,FD        -RGJ B   ,CR                      116    052032.00
                                                                                        071    052032.10
                                                                                        076    052032.20
                                                                                        051    052032.30
                                                                                        056    052032.40
                                                                                        000    052032.50
                                                                                        000    052032.60
                                                                                        375    052032.70
        %16¤DD%BU,8,8¤,74,2B,64,3B,54,4B,44,5B        -. 2HUPMX                         164    052033.00
                                                                                        053    052033.10
                                                                                        144    052033.20
                                                                                        073    052033.30
                                                                                        124    052033.40
                                                                                        113    052033.50
                                                                                        104    052033.60
                                                                                        133    052033.70
        %16¤DD%BU,8,8¤,34,6B,24,23,6C,33,5C,43        -E5   6DYL                        064    052034.00
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                                                                          153   052034.10
                                                                          044   052034.20
                                                                          043   052034.30
                                                                          154   052034.40
                                                                          063   052034.50
                                                                          134   052034.60
                                                                          103   052034.70
          %16¤DD%BU,8,8¤,4C,53,3C,63,2C,73,72,2D    -QT!1A99A             114   052035.00
                                                                          123   052035.10
                                                                          074   052035.20
                                                                          143   052035.30
                                                                          054   052035.40
                                                                          163   052035.50
                                                                          162   052035.60
                                                                          055   052035.70
          %16¤DD%BU,8,8¤,62,3D,52,4D,42,5D,32,6D    -1!TQLYD6             142   052036.00
                                                                          075   052036.10
                                                                          122   052036.20
                                                                          115   052036.30
                                                                          102   052036.40
                                                                          135   052036.50
                                                                          062   052036.60
                                                                          155   052036.70
          %16¤DD%BU,8,8¤,22,25,6A,35,5A,45,4A,55    -  5EXMPU             042   052037.00
                                                                          045   052037.10
                                                                          152   052037.20
                                                                          065   052037.30
                                                                          132   052037.40
                                                                          105   052037.50
                                                                          112   052037.60
                                                                          125   052037.70
          %16¤DD%BU,8,8¤,3A,65,2A,75,00,00,FC,FC    -H2    BS,BS          072   052040.00
                                                                          145   052040.10
                                                                          052   052040.20
                                                                          165   052040.30
                                                                          000   052040.40
                                                                          000   052040.50
                                                                          374   052040.60
                                                                          374   052040.70
 BST1     DR%BU,64,8¤,3                                      3.00               052041.00
          %16¤DD%BU,8,8¤,FD,53,00,00,50,00,3C,50    -T  S !S              375   052044.00
                                                                          123   052044.10
                                                                          000   052044.20
                                                                          000   052044.30
                                                                          120   052044.40
                                                                          000   052044.50
                                                                          074   052044.60
                                                                          120   052044.70
          %16¤DD%BU,8,8¤,FC,FC,FC,FC,FC,FC,3A,3C    -     H!              374   052045.00
                                                                          374   052045.10
                                                                          374   052045.20
                                                                          374   052045.30
                                                                          374   052045.40
                                                                          374   052045.50
                                                                          072   052045.60
                                                                          074   052045.70
          %16¤DD%BU,8,8¤,00,00,00,00,00,2C,00,00    -     A               000   052046.00
                                                                          000   052046.10
                                                                          000   052046.20
                                                                          000   052046.30
                                                                          000   052046.40
                                                                          054   052046.50
                                                                          000   052046.60
                                                                          000   052046.70
          %16¤DD%BU,8,8¤,00,00,00,00,00,00,00,00                          000   052047.00
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                                                                                000  052047.10
                                                                                000  052047.20
                                                                                000  052047.30
                                                                                000  052047.40
                                                                                000  052047.50
                                                                                000  052047.60
                                                                                000  052047.70
        %16¤DD%BU,8,8¤,00,52,34,50,52,74,FC,FC      -TEST                       000  052050.00
                                                                                122  052050.10
                                                                                064  052050.20
                                                                                120  052050.30
                                                                                122  052050.40
                                                                                164  052050.50
                                                                                374  052050.60
                                                                                374  052050.70
        %16¤DD%BU,8,8¤,FC,FC,FC,FC,FC,FC,FC,FC                                  374  052051.00
                                                                                374  052051.10
                                                                                374  052051.20
                                                                                374  052051.30
                                                                                374  052051.40
                                                                                374  052051.50
                                                                                374  052051.60
                                                                                374  052051.70
        %16¤DD%BU,8,8¤,FC,FC,FC,FC,FC,0F,0D,11      -       BAC                 374  052052.00
                                                                                374  052052.10
                                                                                374  052052.20
                                                                                374  052052.30
                                                                                374  052052.40
                                                                                017  052052.50
                                                                                015  052052.60
                                                                                021  052052.70
        %16¤DD%BU,8,8¤,81,91,8B,0D,11,15,00,00      -KSPACE                     201  052053.00
                                                                                221  052053.10
                                                                                213  052053.20
                                                                                015  052053.30
                                                                                021  052053.40
                                                                                025  052053.50
                                                                                000  052053.60
                                                                                000  052053.70
RIPL    DR%BU,64,8¤,3                                           3.00                052054.00
RIPL0   %16¤DD%BU,8,8¤,FC,00,00,FC,FC,00,00,FD      -CARR-RET                   374  052057.00
                                                                                000  052057.10
                                                                                000  052057.20
                                                                                374  052057.30
                                                                                374  052057.40
                                                                                000  052057.50
                                                                                000  052057.60
                                                                                375  052057.70
RIPL1   %16¤DD%BU,8,8¤,2D,2F,31,33,35,37,39,3B      -ABCDEFGH                   055  052060.00
                                                                                057  052060.10
                                                                                061  052060.20
                                                                                063  052060.30
                                                                                065  052060.40
                                                                                067  052060.50
                                                                                071  052060.60
                                                                                073  052060.70
        %16¤DD%BU,8,8¤,3D,3F,41,43,45,47,49,4B      -IJKLMNOP                   075  052061.00
                                                                                077  052061.10
                                                                                101  052061.20
                                                                                103  052061.30
                                                                                105  052061.40
                                                                                107  052061.50
                                                                                111  052061.60
                                                                                113  052061.70
        %16¤DD%BU,8,8¤,4D,4F,51,53,55,57,59,5B      -QRSTUVWX                   115  052062.00
                                                                                117  052062.10
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                                                              121  052062.20
                                                              123  052062.30
                                                              125  052062.40
                                                              127  052062.50
                                                              131  052062.60
                                                              133  052062.70
        %16¤DD%BU,8,8¤,5D,5F,2D,2F,31,33,35,37   -YZABCDEF    135  052063.00
                                                              137  052063.10
                                                              055  052063.20
                                                              057  052063.30
                                                              061  052063.40
                                                              063  052063.50
                                                              065  052063.60
                                                              067  052063.70
        %16¤DD%BU,8,8¤,39,3B,3D,3F,41,43,45,47   -GHIJKLMN    071  052064.00
                                                              073  052064.10
                                                              075  052064.20
                                                              077  052064.30
                                                              101  052064.40
                                                              103  052064.50
                                                              105  052064.60
                                                              107  052064.70
        %16¤DD%BU,8,8¤,49,4B,4D,4F,51,53,55,57   -OPQRSTUV    111  052065.00
                                                              113  052065.10
                                                              115  052065.20
                                                              117  052065.30
                                                              121  052065.40
                                                              123  052065.50
                                                              125  052065.60
                                                              127  052065.70
        %16¤DD%BU,8,8¤,59,5B,5D,5F,2D,2F,31,33   -WXYZABCD    131  052066.00
                                                              133  052066.10
                                                              135  052066.20
                                                              137  052066.30
                                                              055  052066.40
                                                              057  052066.50
                                                              061  052066.60
                                                              063  052066.70
        %16¤DD%BU,8,8¤,35,37,39,3B,3D,3F,41,43   -EFGHIJKL    065  052067.00
                                                              067  052067.10
                                                              071  052067.20
                                                              073  052067.30
                                                              075  052067.40
                                                              077  052067.50
                                                              101  052067.60
                                                              103  052067.70
RIPL2   %16¤DD%BU,8,8¤,45,47,49,4B,4D,4F,51,53   -MNOPQRST    105  052070.00
                                                              107  052070.10
                                                              111  052070.20
                                                              113  052070.30
                                                              115  052070.40
                                                              117  052070.50
                                                              121  052070.60
                                                              123  052070.70
        %16¤DD%BU,8,8¤,55,57,59,5B,5D,5F,2D,2F   -UVWXYZAB    125  052071.00
                                                              127  052071.10
                                                              131  052071.20
                                                              133  052071.30
                                                              135  052071.40
                                                              137  052071.50
                                                              055  052071.60
                                                              057  052071.70
        %16¤DD%BU,8,8¤,31,33,35,37,39,3B,3D,3F   -CDEFGHIJ    061  052072.00
                                                              063  052072.10
                                                              065  052072.20
                                                              067  052072.30
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                                                                                071   052072.40
                                                                                073   052072.50
                                                                                075   052072.60
                                                                                077   052072.70
                    %16¤DD%BU,8,8¤,41,43,45,47,49,4B,4D,4F      -KLMNOPQR       101   052073.00
                                                                                103   052073.10
                                                                                105   052073.20
                                                                                107   052073.30
                                                                                111   052073.40
                                                                                113   052073.50
                                                                                115   052073.60
                                                                                117   052073.70
                    %16¤DD%BU,8,8¤,51,53,55,57,59,5B,5D,5F      -STUVWXYZ       121   052074.00
                                                                                123   052074.10
                                                                                125   052074.20
                                                                                127   052074.30
                                                                                131   052074.40
                                                                                133   052074.50
                                                                                135   052074.60
                                                                                137   052074.70
          -
          RIPL3     %16¤DD%BU,8,8¤,2F,31,33,35,37,39,3B,3D      -BCDEFGHI        057   052075.00
                                                                                061   052075.10
                                                                                063   052075.20
                                                                                065   052075.30
                                                                                067   052075.40
                                                                                071   052075.50
                                                                                073   052075.60
                                                                                075   052075.70
                    %16¤DD%BU,8,8¤,3F,41,43,45,47,49,4B,4D      -JKLMNOPQ       077   052076.00
                                                                                101   052076.10
                                                                                103   052076.20
                                                                                105   052076.30
                                                                                107   052076.40
                                                                                111   052076.50
                                                                                113   052076.60
                                                                                115   052076.70
                    %16¤DD%BU,8,8¤,4F,51,53,55,57,59,5B,5D      -RSTUVWXY       117   052077.00
                                                                                121   052077.10
                                                                                123   052077.20
                                                                                125   052077.30
                                                                                127   052077.40
                                                                                131   052077.50
                                                                                133   052077.60
                                                                                135   052077.70
                    %16¤DD%BU,8,8¤,5F,2D,2F,31,33,35,37,39      -ZABCDEFG       137   052100.00
                                                                                055   052100.10
                                                                                057   052100.20
                                                                                061   052100.30
                                                                                063   052100.40
                                                                                065   052100.50
                                                                                067   052100.60
                                                                                071   052100.70
                    %16¤DD%BU,8,8¤,3B,3D,3F,41,43,45,47,49      -HIJKLMNO       073   052101.00
                                                                                075   052101.10
                                                                                077   052101.20
                                                                                101   052101.30
                                                                                103   052101.40
                                                                                105   052101.50
                                                                                107   052101.60
                                                                                111   052101.70
                    %16¤DD%BU,8,8¤,4B,4D,4F,51,53,55,57,59      -PQRSTUVW       113   052102.00
                                                                                115   052102.10
                                                                                117   052102.20
                                                                                121   052102.30
                                                                                123   052102.40
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                                                                   125  052102.50
                                                                   127  052102.60
                                                                   131  052102.70
             %16¤DD%BU,8,8¤,5B,5D,5F,2D,2F,31,33,35   -XYZABCDE    133  052103.00
                                                                   135  052103.10
                                                                   137  052103.20
                                                                   055  052103.30
                                                                   057  052103.40
                                                                   061  052103.50
                                                                   063  052103.60
                                                                   065  052103.70
             %16¤DD%BU,8,8¤,37,39,3B,3D,3F,41,43,45   -FGHIJKLM    067  052104.00
                                                                   071  052104.10
                                                                   073  052104.20
                                                                   075  052104.30
                                                                   077  052104.40
                                                                   101  052104.50
                                                                   103  052104.60
                                                                   105  052104.70
      RIPL4  %16¤DD%BU,8,8¤,47,49,4B,4D,4F,51,53,55   -NOPQRSTU    107  052105.00
                                                                   111  052105.10
                                                                   113  052105.20
                                                                   115  052105.30
                                                                   117  052105.40
                                                                   121  052105.50
                                                                   123  052105.60
                                                                   125  052105.70
             %16¤DD%BU,8,8¤,57,59,5B,5D,5F,2D,2F,31   -VWXYZABC    127  052106.00
                                                                   131  052106.10
                                                                   133  052106.20
                                                                   135  052106.30
                                                                   137  052106.40
                                                                   055  052106.50
                                                                   057  052106.60
                                                                   061  052106.70
             %16¤DD%BU,8,8¤,33,35,37,39,3B,3D,3F,41   -DEFGHIJK    063  052107.00
                                                                   065  052107.10
                                                                   067  052107.20
                                                                   071  052107.30
                                                                   073  052107.40
                                                                   075  052107.50
                                                                   077  052107.60
                                                                   101  052107.70
             %16¤DD%BU,8,8¤,43,45,47,49,4B,4D,4F,51   -LMNOPQRS    103  052110.00
                                                                   105  052110.10
                                                                   107  052110.20
                                                                   111  052110.30
                                                                   113  052110.40
                                                                   115  052110.50
                                                                   117  052110.60
                                                                   121  052110.70
             %16¤DD%BU,8,8¤,53,55,57,59,5B,5D,5F,2D   -TUVWXYZA    123  052111.00
                                                                   125  052111.10
                                                                   127  052111.20
                                                                   131  052111.30
                                                                   133  052111.40
                                                                   135  052111.50
                                                                   137  052111.60
                                                                   055  052111.70
      RIPL5  %16¤DD%BU,8,8¤,FD,53,3B,3D,51,00,3D,51   -CR, THIS IS 375  052112.00
                                                                   123  052112.10
                                                                   073  052112.20
                                                                   075  052112.30
                                                                   121  052112.40
                                                                   000  052112.50
                                                                   075  052112.60
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                                                                              121   052112.70
                %16¤DD%BU,8,8¤,53,38,35,00,35,47,33,00     -THE END           123   052113.00
                                                                              073   052113.10
                                                                              065   052113.20
                                                                              000   052113.30
                                                                              065   052113.40
                                                                              107   052113.50
                                                                              063   052113.60
                                                                              000   052113.70
                %16¤DD%BU,8,8¤,49,37,00,4F,3D,4B,4B,43     -OF RIPPL          111   052114.00
                                                                              067   052114.10
                                                                              000   052114.20
                                                                              117   052114.30
                                                                              075   052114.40
                                                                              113   052114.50
                                                                              113   052114.60
                                                                              103   052114.70
                %16¤DD%BU,8,8¤,35,00,53,35,51,53,74,74     -E TEST..          065   052115.00
                                                                              000   052115.10
                                                                              123   052115.20
                                                                              065   052115.30
                                                                              121   052115.40
                                                                              123   052115.50
                                                                              164   052115.60
                                                                              164   052115.70
          -
                CNOP
          -
          -     RED ALPHABET
          -
      ALLC      DR%BU,64,8¤,%3¤                               3.00                  052116.00
                %16¤DD%BU,8,8¤,FD,0C,0D,0E,0F,10,11,12                        375   052121.00
                                                                              014   052121.10
                                                                              015   052121.20
                                                                              016   052121.30
                                                                              017   052121.40
                                                                              020   052121.50
                                                                              021   052121.60
                                                                              022   052121.70
                %16¤DD%BU,8,8¤,13,14,15,16,17,18,19,1A                        023   052122.00
                                                                              024   052122.10
                                                                              025   052122.20
                                                                              026   052122.30
                                                                              027   052122.40
                                                                              030   052122.50
                                                                              031   052122.60
                                                                              032   052122.70
                %16¤DD%BU,8,8¤,1B,1C,1D,1E,1F,80,81,82                        033   052123.00
                                                                              034   052123.10
                                                                              035   052123.20
                                                                              036   052123.30
                                                                              037   052123.40
                                                                              200   052123.50
                                                                              201   052123.60
                                                                              202   052123.70
                %16¤DD%BU,8,8¤,83,84,85,86,87,88,89,8A                        203   052124.00
                                                                              204   052124.10
                                                                              205   052124.20
                                                                              206   052124.30
                                                                              207   052124.40
                                                                              210   052124.50
                                                                              211   052124.60
                                                                              212   052124.70
                %16¤DD%BU,8,8¤,8B,8C,8D,8E,8F,90,91,92                        213   052125.00
                                                                              214   052125.10
                                                                              215   052125.20
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                                                                    216  052125.30
                                                                    217  052125.40
                                                                    220  052125.50
                                                                    221  052125.60
                                                                    222  052125.70
%16¤DD%BU,8,8¤,93,94,95,96,97,98,99,9A                              223  052126.00
                                                                    224  052126.10
                                                                    225  052126.20
                                                                    226  052126.30
                                                                    227  052126.40
                                                                    230  052126.50
                                                                    231  052126.60
                                                                    232  052126.70
%16¤DD%BU,8,8¤,9B,9C,9D,9E,9F,00,00,00                              233  052127.00
                                                                    234  052127.10
                                                                    235  052127.20
                                                                    236  052127.30
                                                                    237  052127.40
                                                                    000  052127.50
                                                                    000  052127.60
                                                                    000  052127.70
;
;       BLACK ALPHABET
;
%16¤DD%BU,8,8¤,FD,2C,2D,2E,2F,30,31,32                              375  052130.00
                                                                    054  052130.10
                                                                    055  052130.20
                                                                    056  052130.30
                                                                    057  052130.40
                                                                    060  052130.50
                                                                    061  052130.60
                                                                    062  052130.70
%16¤DD%BU,8,8¤,33,34,35,36,37,38,39,3A                              063  052131.00
                                                                    064  052131.10
                                                                    065  052131.20
                                                                    066  052131.30
                                                                    067  052131.40
                                                                    070  052131.50
                                                                    071  052131.60
                                                                    072  052131.70
%16¤DD%BU,8,8¤,3B,3C,3D,3E,3F,40,41,42                              073  052132.00
                                                                    074  052132.10
                                                                    075  052132.20
                                                                    076  052132.30
                                                                    077  052132.40
                                                                    100  052132.50
                                                                    101  052132.60
                                                                    102  052132.70
%16¤DD%BU,8,8¤,43,44,45,46,47,48,49,4A                              103  052133.00
                                                                    104  052133.10
                                                                    105  052133.20
                                                                    106  052133.30
                                                                    107  052133.40
                                                                    110  052133.50
                                                                    111  052133.60
                                                                    112  052133.70
%16¤DD%BU,8,8¤,4B,4C,4D,4E,4F,50,51,52                              113  052134.00
                                                                    114  052134.10
                                                                    115  052134.20
                                                                    116  052134.30
                                                                    117  052134.40
                                                                    120  052134.50
                                                                    121  052134.60
                                                                    122  052134.70
%16¤DD%BU,8,8¤,53,54,55,56,57,58,59,5A                              123  052135.00
                                                                    124  052135.10
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                                                        125   052135.20
                                                        126   052135.30
                                                        127   052135.40
                                                        130   052135.50
                                                        131   052135.60
                                                        132   052135.70
        %16¤DD%BU,8,8¤,5B,5C,5D,5E,5F,00,00,00          133   052136.00
                                                        134   052136.10
                                                        135   052136.20
                                                        136   052136.30
                                                        137   052136.40
                                                        000   052136.50
                                                        000   052136.60
                                                        000   052136.70
   -
   -    RED NUMBERS + SPECIALS
   -
        %16¤DD%BU,8,8¤,FD,01,02,03,04,05,06,07          375   052137.00
                                                        001   052137.10
                                                        002   052137.20
                                                        003   052137.30
                                                        004   052137.40
                                                        005   052137.50
                                                        006   052137.60
                                                        007   052137.70
        %16¤DD%BU,8,8¤,08,09,0A,0B,A0,A1,A2,A3          010   052140.00
                                                        011   052140.10
                                                        012   052140.20
                                                        013   052140.30
                                                        240   052140.40
                                                        241   052140.50
                                                        242   052140.60
                                                        243   052140.70
        %16¤DD%BU,8,8¤,A4,A5,A6,A7,A8,A9,AA,AB          244   052141.00
                                                        245   052141.10
                                                        246   052141.20
                                                        247   052141.30
                                                        250   052141.40
                                                        251   052141.50
                                                        252   052141.60
                                                        253   052141.70
        %16¤DD%BU,8,8¤,AC,AD,AE,AF,B0,B1,B2,B3          254   052142.00
                                                        255   052142.10
                                                        256   052142.20
                                                        257   052142.30
                                                        260   052142.40
                                                        261   052142.50
                                                        262   052142.60
                                                        263   052142.70
        %16¤DD%BU,8,8¤,B4,B5,B6,B7,00,00,00,00          264   052143.00
                                                        265   052143.10
                                                        266   052143.20
                                                        267   052143.30
                                                        000   052143.40
                                                        000   052143.50
                                                        000   052143.60
                                                        000   052143.70
   -
   -    BLACK NUMBERS + SPECIALS
   -
        %16¤DD%BU,8,8¤,FD,20,21,22,23,24,25,26          375   052144.00
                                                        040   052144.10
                                                        041   052144.20
                                                        042   052144.30
                                                        043   052144.40
                                                        044   052144.50
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%16¤DD%BU,8,8¤,27,28,29,2A,2B,60,61,62      045  052144.60
                                             046  052144.70
                                             047  052145.00
                                             050  052145.10
                                             051  052145.20
                                             052  052145.30
                                             053  052145.40
                                             140  052145.50
                                             141  052145.60
                                             142  052145.70
%16¤DD%BU,8,8¤,63,64,65,66,67,68,69,6A      143  052146.00
                                             144  052146.10
                                             145  052146.20
                                             146  052146.30
                                             147  052146.40
                                             150  052146.50
                                             151  052146.60
                                             152  052146.70
%16¤DD%BU,8,8¤,6B,6C,6D,6E,6F,70,71,72      153  052147.00
                                             154  052147.10
                                             155  052147.20
                                             156  052147.30
                                             157  052147.40
                                             160  052147.50
                                             161  052147.60
                                             162  052147.70
%16¤DD%BU,8,8¤,73,74,75,76,77,00,00,00      163  052150.00
                                             164  052150.10
                                             165  052150.20
                                             166  052150.30
                                             167  052150.40
                                             000  052150.50
                                             000  052150.60
                                             000  052150.70
CNOP
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-          CARD PUNCH TEST
-
-              TEST ONE-NON-ECC MODE
-              TEST TWO-ECC MODE
-
-          TEST ONE-NON-ECC MODE-15 WORDS PER CARD
-              TABLE OF STARTING POSITION OF WORDS PUNCHED
-
-              WORD       COLUMN        ROW         WORD      COLUMN       ROW
-                1           1           12            2          6           2
-                3          11            6            4         17          12
-                5          22            2            6         27           6
-                7          33           12            8         38           2
-                9          43            6           10         49          12
-               11          55            2           12         59           6
-               13          65           12           14         70           2
-               15          75            6
-
PCH1       CW%CR¤,PWD1,15,0               -PUNCH ONE CARD                   52450.00 00 000360.00 00      052151.00
-
-
-          THE FOLLOWING CWS PUNCH 13 CARDS DIAGONAL PATTERN
-
           CW%CCR¤,PWD1,13,$+1.                                             52450.00 40 000321.24 6B      052152.00
           CW%CDSC¤,PWD1,2,$+1.           -PATTERN TEST-PUNCH 13 CARDS      52450.00 60 000041.24 6C      052153.00
           CW%CCR¤,PWD1+1.,12,$+1.        -TOTAL OF 13 CARDS.               52451.00 40 000301.24 6D      052154.00
           CW%CDSC¤,PWD1,3,$+1.                                             52450.00 60 000061.24 6E      052155.00
           CW%CCR¤,PWD1+2.,11,$+1.        -CARD 3                           52452.00 40 000261.24 6F      052156.00
           CW%CDSC¤,PWD1,4,$+1.                                             52450.00 60 000101.24 70      052157.00
           CW%CCR¤,PWD1+3.,10,$+1.        -CARD 4                           52453.00 40 000241.24 71      052160.00
           CW%CDSC¤,PWD1,5,$+1.                                             52450.00 60 000121.24 72      052161.00
           CW%CCR¤,PWD1+4.,9,$+1.         -CARD 5                           52454.00 40 000221.24 73      052162.00
           CW%CDSC¤,PWD1,6,$+1.                                             52450.00 60 000141.24 74      052163.00
           CW%CCR¤,PWD1+5.,8,$+1.         -CARD 6                           52455.00 40 000201.24 75      052164.00
           CW%CDSC¤,PWD1,7,$+1.                                             52450.00 60 000161.24 76      052165.00
           CW%CCR¤,PWD1+6.,7,$+1.         -CARD 7                           52456.00 40 000161.24 77      052166.00
           CW%CDSC¤,PWD1,8,$+1.                                             52450.00 60 000201.24 78      052167.00
           CW%CCR¤,PWD1+7.,6,$+1.         -CARD 8                           52457.00 40 000141.24 79      052170.00
           CW%CDSC¤,PWD1,9,$+1.                                             52450.00 60 000221.24 7A      052171.00
           CW%CCR¤,PWD1+8.,5,$+1.         -CARD 9                           52460.00 40 000121.24 7B      052172.00
           CW%CDSC¤,PWD1,10,$+1.                                            52450.00 60 000241.24 7C      052173.00
           CW%CCR¤,PWD1+9.,4,$+1.         -CARD 10                          52461.00 40 000101.24 7D      052174.00
           CW%CDSC¤,PWD1,11,$+1.                                            52450.00 60 000261.24 7E      052175.00
           CW%CCR¤,PWD1+10.,3,$+1.        -CARD 11                          52462.00 40 000061.24 7F      052176.00
           CW%CDSC¤,PWD1,12,$+1.                                            52450.00 60 000301.24 80      052177.00
           CW%CCR¤,PWD1+11.,2,$+1.        -CARD 12                          52463.00 40 000041.24 81      052200.00
           CW%CDSC¤,PWD1,13,$+1.                                            52450.00 60 000321.24 82      052201.00
           CW%CCR¤,PWD1+12.,1,$+1.                                          52464.00 40 000021.24 83      052202.00
           CW%CCR¤,PWD1,13,$+1.                                             52450.00 40 000321.24 84      052203.00
           CW%CD¤,PWD1,1,0                                                  52450.00 20 000020.00 00      052204.00
-
```

TEST TWO-ECC MODE-13 WORDS PER CARD

TABLE OF STARTING POSITION OF WORDS PUNCHED
ALL WORDS BEGIN IN ROW 12.

WORD	COLUMN	WORD	COLUMN
1	1	2	7
3	13	4	19
5	25	6	31
7	37	8	43
9	49	10	55
11	61	12	67
13	73		

TABLE OF BITS ON WHICH ECC BIT IS BASED

ECC BITS	DATA BITS
C-0	0-32
C-1	1, 3, 5,...61, 63
C-2	2-3, 6-7, 10-11, ... 62-63
C-4	4-7, 12-15, ... 60-63
C-8	8-15, 24-31, 40-47, 56-63
C-16	16-31 ,48-63
C-32	0, 32-63

C-T IS BASED ON OVERALL PARITY INCLUDING ECC BITS

SET PUNCH TO ECC MODE. CONTROL CODE 00101111

```
PCH2    CW%CR¤,PWD2,13,0          -PUNCH 1 ECC-CARD      52465.00 00 000320.00 00    052205.00
```

THE FOLLOWING CWS PUNCH 9 CARDS ECC MODE

FLOATING ONE C-BIT PATTERN

PUNCH NINE CARDS	CARD	FIRST WORD C-BITS
	- 1	200
	- 2	010
	- 3	000
	- 4	020
	- 5	001
	- 6	040
	- 7	002
	- 8	100
	- 9	004

```
        CW%CCR¤,PWD2,9,$+1.          52465.00 40 000221.24 87    052206.00
        CW%CDSC¤,PWD2,4,$+1.         52465.00 60 000101.24 88    052207.00
        CW%CCR¤,PWD2+4,,5,$+1.       52471.00 40 000121.24 89    052210.00
        CW%CDSC¤,PWD2,8,$+1.         52465.00 60 000201.24 8A    052211.00
        CW%CCR¤,PWD2+8,,1,$+1.       52475.00 40 000021.24 8B    052212.00
        CW%CCR¤,PWD2,9,$+1.          52465.00 40 000221.24 8C    052213.00
        CW%CDSC¤,PWD2,3,$+1.         52465.00 60 000061.24 8D    052214.00
        CW%CCR¤,PWD2+3,,6,$+1.       52470.00 40 000141.24 8E    052215.00
        CW%CDSC¤,PWD2,7,$+1.         52465.00 60 000161.24 8F    052216.00
        CW%CCR¤,PWD2+7,,2,$+1.       52474.00 40 000041.24 90    052217.00
        CW%CCR¤,PWD2,9,$+1.          52465.00 40 000221.24 91    052220.00
```

```
CW%CDSC¤,PWD2,2,$+1.                52485.00 60 000041.24 92    052221.00
CW%CCR¤,PWD2+2,,7,$+1.              52467.00 40 000161.24 93    052222.00
CW%CDSC¤,PWD2,6,$+1.                52465.00 60 000141.24 94    052223.00
CW%CCR¤,PWD2+6,,3,$+1.              52473.00 40 000061.24 95    052224.00
CW%CCR¤,PWD2,9,$+1.                 52465.00 40 000221.24 96    052225.00
CW%CDSC¤,PWD2,1,$+1.                52465.00 60 000021.24 97    052226.00
CW%CCR¤,PWD2+1,,8,$+1.              52466.00 40 000201.24 98    052227.00
CW%CDSC¤,PWD2,5,$+1.                52465.00 60 000121.24 99    052230.00
CW%CCR¤,PWD2+5,,4,$+1.              52472.00 40 000101.24 9A    052231.00
CW%CD¤,PWD2,9,$+1.                  52465.00 20 000221.24 9B    052232.00
```

```
-
-       THE FOLLOWING CWS PUNCH 9 CARDS ECC MODE
-
-       FLOATING ZERO C-BIT PATTERN
-
-       PUNCH NINE CARDS                CARD      FIRST WORD  C-BITS
                                        - 1             377
                                        - 2             357
                                        - 3             376
                                        - 4             337
                                        - 5             375
                                        - 6             277
                                        - 7             373
                                        - 8             177
                                        - 9             367
-
-       SET PUNCH TO ECC MODE.  CONTROL CODE 00101111
-
-
            CW%CCR¤,PWD3,9,$+1.                          52502.00 40 000221.24 9C    052233.00
            CW%CDSC¤,PWD3,4,$+1.                         52502.00 60 000101.24 9D    052234.00
            CW%CCR¤,PWD3+4.,5,$+1.                       52506.00 40 000121.24 9E    052235.00
            CW%CDSC¤,PWD3,8,$+1.                         52502.00 60 000201.24 9F    052236.00
            CW%CCR¤,PWD3+8.,1,$+1.                       52512.00 40 000021.24 A0    052237.00
            CW%CCR¤,PWD3,9,$+1.                          52502.00 40 000221.24 A1    052240.00
            CW%CDSC¤,PWD3,3,$+1.                         52502.00 60 000061.24 A2    052241.00
            CW%CCR¤,PWD3+3.,6,$+1.                       52505.00 40 000141.24 A3    052242.00
            CW%CDSC¤,PWD3,7,$+1.                         52502.00 60 000161.24 A4    052243.00
            CW%CCR¤,PWD2+3.,2,$+1.                       52470.00 40 000041.24 A5    052244.00
            CW%CCR¤,PWD3,9,$+1.                          52502.00 40 000221.24 A6    052245.00
            CW%CDSC¤,PWD3,2,$+1.                         52502.00 60 000041.24 A7    052246.00
            CW%CCR¤,PWD3+2.,7,$+1.                       52504.00 40 000161.24 A8    052247.00
            CW%CDSC¤,PWD3,6,$+1.                         52502.00 60 000141.24 A9    052250.00
            CW%CCR¤,PWD3+6.,3,$+1.                       52510.00 40 000061.24 AA    052251.00
            CW%CCR¤,PWD3,9,$+1.                          52502.00 40 000221.24 AB    052252.00
            CW%CDSC¤,PWD3,1,$+1.                         52502.00 60 000021.24 AC    052253.00
            CW%CCR¤,PWD3+1.,8,$+1.                       52503.00 40 000201.24 AD    052254.00
            CW%CDSC¤,PWD3,5,$+1.                         52502.00 60 000121.24 AE    052255.00
            CW%CCR¤,PWD3+5.,4,$+1.                       52507.00 40 000101.24 AF    052256.00
            CW%CD¤,PWD3,9,0                              52502.00 20 000220.00 00    052257.00
-
```

```
-
-       PUNCH TEST USING IQS DATA
-
-       TO CHECK CARDS PUNCHED, A PRINTOUT OF READ
-       IN AREA AND WRITE AREA IS PROVIDED. WRITE
-       AREA WORDS ARE PRINTED FIRST.
-                                -NON-ECC MODE.
PCH3   CW%CD¤,PWD4,30,0         -PUNCH 2 CARDS NON-ECC MODE   52513.00 20 000740.00 00   052260.00
       CW%CD¤,PRES3,30,0        -READ 2 CARDS NON-ECC MODE    52715.00 20 000740.00 00   052261.00
       CW%CDSC¤,PRES1,7,$+1.    -IDENTIFICATION               52677.00 60 000161.24 B3   052262.00
       CW%CDSC¤,PWD4,15,$+1.                                  52513.00 60 000361.24 B4   052263.00
       CW%CDSC¤,PWD4+15,,15,$+1.                              52532.00 60 000361.24 B5   052264.00
       CW%CDSC¤,PRES2,7,$+1.    -IDENTIFICATION WORD          52706.00 60 000161.24 B6   052265.00
       CW%CDSC¤,PRES3,15,$+1.                                 52715.00 60 000361.24 B7   052266.00
       CW%CR¤,PRES3+15,,15,0                                  52734.00 00 000360.00 00   052267.00
-
-
-       SET PUNCH AND READER TO ECC MODE. CONTROL CODE  00101111
-
PCH4   CW%CD¤,PWD5,26,0         -PUNCH 2 CARDS ECC MODE       52551.00 20 000640.00 00   052270.00
       CW%CD¤,PRES3A,26,0       -READ 2 CARDS ECC MODE        52753.00 20 000640.00 00   052271.00
       CW%CDSC¤,PRES1,7,$+1.    -IDENTIFICATION               52677.00 60 000161.24 B8   052272.00
       CW%CDSC¤,PWD5,13,$+1.                                  52551.00 60 000321.24 BC   052273.00
       CW%CDSC¤,PWD5+13,,$+1.                                 52566.00 61 245720.00 00   052274.00
       CW%CDSC¤,PRES2,7,$+1.    -IDENTIFICATION WORD          52706.00 60 000161.24 BE   052275.00
       CW%CDSC¤,PRES3A,13,$+1.                                52753.00 60 000321.24 BF   052276.00
       CW%CR¤,PRES3A+13,,$+1.                                 52770.00 01 246000.00 00   052277.00
-
```

```
-       EXTENDED PUNCH TEST
-         CONTROL WORDS ARE PROVIDED FOR ECC OR NON-ECC MODE
-         FOR CHECKING, THE FOLLOWING IS INCLUDED-
-           1.CONTROL WORDS FOR READING PUNCH TEST OUTPUT.
-             ...CARDS MUST BE READ IN SAME MODE AS PUNCHED.
-           2.CONTROL WORDS TO PRINT OUT CORRECT DATA
-             AND TEST DATA,EACH IDENTIFIED, CORRECT DATA
-             WILL BE PRINTED FIRST..
-                                  -NON-ECC MODE-CF-1, 10 CARDS
-
PCH5    CW%CDSC¤,PWD6,15,$+1.      -CARD 6          52603.00 60 000361.24 C1    052300.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 C2    052301.00
        CW%CDSC¤,PWD6C,5,$+1.      -CARD 7          52622.00 60 000121.24 C3    052302.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 C4    052303.00
        CW%CDSC¤,PWD6D,5,$+1.      -CARD 10         52627.00 60 000121.24 C5    052304.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 C6    052305.00
        CW%CDSC¤,PWD6E,5,$+1.      -CARD 11         52634.00 60 000121.24 C7    052306.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 C8    052307.00
        CW%CDSC¤,PWD6F,5,$+1.      -CARD 12         52641.00 60 000121.24 C9    052310.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 CA    052311.00
        CW%CDSC¤,PWD6G,5,$+1.      -CARD 13         52646.00 60 000121.24 CB    052312.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 CC    052313.00
        CW%CDSC¤,PWD6H,5,$+1.      -CARD 14         52653.00 60 000121.24 CD    052314.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 CE    052315.00
        CW%CDSC¤,PWD6J,5,$+1.      -CARD 15         52660.00 60 000121.24 CF    052316.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 D0    052317.00
        CW%CDSC¤,PWD6K,5,$+1.      -CARD 16         52665.00 60 000121.24 D1    052320.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 D2    052321.00
        CW%CD¤,PWD6L,5,0           -CARD 17         52672.00 20 000120.00 00    052322.00
-
        CW%CD¤,PRES2,150,0         -USE THIS CW TO READ 52706.00 20 004540.00 00  052323.00
                                   -CARDS
-
-       USE THE FOLLOWING CONTROL WORDS FOR PRINTOUT
-
        CW%CDSC¤,PRES1,7,$+1.      -IDENTIFICATION  52677.00 60 000161.24 D5    052324.00
-
        CW%CDSC¤,PWD6,15,$+1.                       52603.00 60 000361.24 D6    052325.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 D7    052326.00
        CW%CDSC¤,PWD6C,5,$+1.                       52622.00 60 000121.24 D8    052327.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 D9    052330.00
        CW%CDSC¤,PWD6D,5,$+1.                       52627.00 60 000121.24 DA    052331.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 DB    052332.00
        CW%CDSC¤,PWD6E,5,$+1.                       52634.00 60 000121.24 DC    052333.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 DD    052334.00
        CW%CDSC¤,PWD6F,5,$+1.                       52641.00 60 000121.24 DE    052335.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 DF    052336.00
        CW%CDSC¤,PWD6G,5,$+1.                       52646.00 60 000121.24 E0    052337.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 E1    052340.00
        CW%CDSC¤,PWD6H,5,$+1.                       52653.00 60 000121.24 E2    052341.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 E3    052342.00
        CW%CDSC¤,PWD6J,5,$+1.                       52660.00 60 000121.24 E4    052343.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 E5    052344.00
        CW%CDSC¤,PWD6K,5,$+1.                       52665.00 60 000121.24 E6    052345.00
        CW%CCR¤,PWD6,10,$+1.                        52603.00 40 000241.24 E7    052346.00
        CW%CDSC¤,PWD6L,5,$+1.                       52672.00 60 000121.24 E8    052347.00
-
        CW%CDSC¤,PRES2,7,$+1.      -IDENTIFICATION WORD 52706.00 60 000161.24 E9  052350.00
        CW%CDSC¤,PRES4,15,$+1.     -FROM READ AREA  53005.00 60 000361.24 EA    052351.00
        CW%CDSC¤,PRES5,15,$+1.                      53024.00 60 000361.24 EB    052352.00
        CW%CDSC¤,PRES6,15,$+1.                      53043.00 60 000361.24 EC    052353.00
        CW%CDSC¤,PRES7,15,$+1.                      53062.00 60 000361.24 ED    052354.00
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CW%CDSC¤,PRES8,15,$+1.          53101.00 60 000361.24 EE    052355.00
CW%CDSC¤,PRES9,15,$+1.          53120.00 60 000361.24 EF    052356.00
CW%CDSC¤,PRES10,15,$+1.         53137.00 60 000361.24 F0    052357.00
CW%CDSC¤,PRES11,15,$+1.         53156.00 60 000361.24 F1    052360.00
CW%CDSC¤,PRES12,15,$+1.         53175.00 60 000361.24 F2    052361.00
CW%CR¤,PRES13,15,0              53214.00 00 000360.00 00    052362.00
```

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-
-       SET PUNCH AND READER TO ECC MODE. CONTROL CODE  00101111
-
-
-                                       -ECC MODE-CF-1,10 CARDS
-
PCH6    CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.24 F4    052363.00
        CW%CDSC¤,PWD6B,5,$+1.           -CARD 6                 52615.00 60 000121.24 F5    052364.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.24 F6    052365.00
        CW%CDSC¤,PWD6C,5,$+1.           -CARD 7                 52622.00 60 000121.24 F7    052366.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.24 F8    052367.00
        CW%CDSC¤,PWD6D,5,$+1.           -CARD 10                52627.00 60 000121.24 F9    052370.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.24 FA    052371.00
        CW%CDSC¤,PWD6F,5,$+1.           -CARD 11                52634.00 60 000121.24 FB    052372.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.24 FC    052373.00
        CW%CDSC¤,PWD6F,5,$+1.           -CARD 12                52641.00 60 000121.24 FD    052374.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.24 FE    052375.00
        CW%CDSC¤,PWD6G,5,$+1.           -CARD 13                52646.00 60 000121.24 FF    052376.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 00    052377.00
        CW%CDSC¤,PWD6H,5,$+1.           -CARD 14                52653.00 60 000121.25 01    052400.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 02    052401.00
        CW%CDSC¤,PWD6J,5,$+1.           -CARD 15                52660.00 60 000121.25 03    052402.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 04    052403.00
        CW%CDSC¤,PWD6K,5,$+1.           -CARD 16                52665.00 60 000121.25 05    052404.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 06    052405.00
        CW%CD¤,PWD6L,5,$+1.             -CARD 17                52672.00 20 000121.25 07    052406.00
-
-
        CW%CD¤,PRES14,130,0             -CONTROL WORD TO READ CARDS  53233.00 20 004040.00 00    052407.00
-
-       USE THE FOLLOWING CONTROL WORDS FOR PRINTOUT
-
        CW%CDSC¤,PRES1,7,$+1.           -IDENTIFICATION         52677.00 60 000161.25 09    052410.00
        CW%CCR¤,PWD6,8,$+1.             -WRITE AREA             52603.00 40 000201.25 0A    052411.00
        CW%CDSC¤,PWD6B,5,$+1.                                   52615.00 60 000121.25 0B    052412.00
        CW%CCR¤,PWD6,8,$+1.             -WRITE AREA             52603.00 40 000201.25 0C    052413.00
        CW%CDSC¤,PWD6C,5,$+1.                                   52622.00 60 000121.25 0D    052414.00
        CW%CCR¤,PWD6,8,$+1.             -WRITE AREA             52603.00 40 000201.25 0E    052415.00
        CW%CDSC¤,PWD6D,5,$+1.                                   52627.00 60 000121.25 0F    052416.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 10    052417.00
        CW%CDSC¤,PWD6E,5,$+1.                                   52634.00 60 000121.25 11    052420.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 12    052421.00
        CW%CDSC¤,PWD6F,5,$+1.                                   52641.00 60 000121.25 13    052422.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 14    052423.00
        CW%CDSC¤,PWD6G,5,$+1.                                   52646.00 60 000121.25 15    052424.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 16    052425.00
        CW%CDSC¤,PWD6H,5,$+1.                                   52653.00 60 000121.25 17    052426.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 18    052427.00
        CW%CDSC¤,PWD6J,5,$+1.                                   52660.00 60 000121.25 19    052430.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 1A    052431.00
        CW%CDSC¤,PWD6K,5,$+1.                                   52665.00 60 000121.25 1B    052432.00
        CW%CCR¤,PWD6,8,$+1.                                     52603.00 40 000201.25 1C    052433.00
        CW%CDSC¤,PWD6L,5,$+1.                                   52672.00 60 000121.25 1D    052434.00
        CW%CDSC¤,PRES2,7,$+1.           -IDENTIFICATION WORD    52706.00 60 000161.25 1E    052435.00
        CW%CDSC¤,PRES14,13,$+1.         -READ AREA              53233.00 60 000321.25 1F    052436.00
        CW%CDSC¤,PRES15,13,$+1.                                 53250.00 60 000321.25 20    052437.00
        CW%CDSC¤,PRES16,13,$+1.                                 53265.00 60 000321.25 21    052440.00
        CW%CDSC¤,PRES17,13,$+1.                                 53302.00 60 000321.25 22    052441.00
        CW%CDSC¤,PRES18,13,$+1.                                 53317.00 60 000321.25 23    052442.00
        CW%CDSC¤,PRES19,13,$+1.                                 53334.00 60 000321.25 24    052443.00
        CW%CDSC¤,PRES20,13,$+1.                                 53351.00 60 000321.25 25    052444.00
        CW%CDSC¤,PRES21,13,$+1.                                 53366.00 60 000321.25 26    052445.00
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                        ,PRES22,13,$+1.                                    53403.00 60 000321.25 27     052446.00
                 CW%CDSC¤,PRES23,13,$+1.                                   53420.00 60 000321.25 28     052447.00
        -
        -
        -
        -        PUNCH TEST DATA
        -
        -        NON-ECC MODE DATA
        -
        PWD1     %8¤DD%BU,8,8¤,200,004,000,040,001,000,010,000                                     200  052450.00
                                                                                                   004  052450.10
                                                                                                   000  052450.20
                                                                                                   040  052450.30
                                                                                                   001  052450.40
                                                                                                   000  052450.50
                                                                                                   010  052450.60
                                                                                                   000  052450.70
                 %8¤DD%BU,8,8¤,100,002,000,020,000,200,004,000                                     100  052451.00
                                                                                                   002  052451.10
                                                                                                   000  052451.20
                                                                                                   020  052451.30
                                                                                                   000  052451.40
                                                                                                   200  052451.50
                                                                                                   004  052451.60
                                                                                                   000  052451.70
                 %8¤DD%BU,8,8¤,040,001,000,010,000,100,002,000                                     040  052452.00
                                                                                                   001  052452.10
                                                                                                   000  052452.20
                                                                                                   010  052452.30
                                                                                                   000  052452.40
                                                                                                   100  052452.50
                                                                                                   002  052452.60
                                                                                                   000  052452.70
                 %8¤DD%BU,8,8¤,020,000,200,004,000,040,001,000                                     020  052453.00
                                                                                                   000  052453.10
                                                                                                   200  052453.20
                                                                                                   004  052453.30
                                                                                                   000  052453.40
                                                                                                   040  052453.50
                                                                                                   001  052453.60
                                                                                                   000  052453.70
                 %8¤DD%BU,8,8¤,010,000,100,002,000,020,000,200                                     010  052454.00
                                                                                                   000  052454.10
                                                                                                   100  052454.20
                                                                                                   002  052454.30
                                                                                                   000  052454.40
                                                                                                   020  052454.50
                                                                                                   000  052454.60
                                                                                                   200  052454.70
                 %8¤DD%BU,8,8¤,004,000,040,001,000,010,000,100                                     004  052455.00
                                                                                                   000  052455.10
                                                                                                   040  052455.20
                                                                                                   001  052455.30
                                                                                                   000  052455.40
                                                                                                   010  052455.50
                                                                                                   000  052455.60
                                                                                                   100  052455.70
                 %8¤DD%BU,8,8¤,002,000,020,000,200,004,000,040                                     002  052456.00
                                                                                                   000  052456.10
                                                                                                   020  052456.20
                                                                                                   000  052456.30
                                                                                                   200  052456.40
                                                                                                   004  052456.50
                                                                                                   000  052456.60
                                                                                                   040  052456.70
```

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                    %8¤DD%BU,8,8¤,001,000,010,000,100,002,000,020
                                                                                001     052457.00
                                                                                000     052457.10
                                                                                010     052457.20
                                                                                000     052457.30
                                                                                100     052457.40
                                                                                002     052457.50
                                                                                000     052457.60
                                                                                020     052457.70
                    %8¤DD%BU,8,8¤,000,200,004,000,040,001,000,010               000     052460.00
                                                                                200     052460.10
                                                                                004     052460.20
                                                                                000     052460.30
                                                                                040     052460.40
                                                                                001     052460.50
                                                                                000     052460.60
                                                                                010     052460.70
                    %8¤DD%BU,8,8¤,000,100,002,000,020,000,200,004               000     052461.00
                                                                                100     052461.10
                                                                                002     052461.20
                                                                                000     052461.30
                                                                                020     052461.40
                                                                                000     052461.50
                                                                                200     052461.60
                                                                                004     052461.70
                    %8¤DD%BU,8,8¤,000,040,001,000,010,000,100,002               000     052462.00
                                                                                040     052462.10
                                                                                001     052462.20
                                                                                000     052462.30
                                                                                010     052462.40
                                                                                000     052462.50
                                                                                100     052462.60
                                                                                002     052462.70
                    %8¤DD%BU,8,8¤,000,020,000,200,004,000,040,001               000     052463.00
                                                                                020     052463.10
                                                                                000     052463.20
                                                                                200     052463.30
                                                                                004     052463.40
                                                                                000     052463.50
                                                                                040     052463.60
                                                                                001     052463.70
                    %8¤DD%BU,8,8¤,000,010,000,100,002,000,020,000               000     052464.00
                                                                                010     052464.10
                                                                                000     052464.20
                                                                                100     052464.30
                                                                                002     052464.40
                                                                                000     052464.50
                                                                                020     052464.60
                                                                                000     052464.70
18          -       THE FOLLOWING ARE DATA WORDS FOR THE ECC
            -       MODE-THE CHECK BITS ARE IN OCTAL NOTATION
            -
15          -       FLOATING ZERO PATTERN                                   -  C-BITS
            PWD2    %8¤DD%BU,8,8¤,301,200,000,000,101,200,000,000           -377   301     052465.00
                                                                                200     052465.10
12                                                                              000     052465.20
11                                                                              000     052465.30
                                                                                101     052465.40
                                                                                200     052465.50
9                                                                               000     052465.60
                                                                                000     052465.70
                    %8¤DD%BU,8,8¤,350,200,200,000,230,200,200,000           -177   350     052466.00
5                                                                               200     052466.10
4                                                                               200     052466.20
                                                                                000     052466.30
                                                                                230     052466.40
                                                                                200     052466.50
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                                                                              200   052466.60
                                                                              000   052466.70
      %8¤DD%BU,8,8¤,020,000,000,000,240,000,000,000        -277                020   052467.00
                                                                              000   052467.10
                                                                              000   052467.20
                                                                              000   052467.30
                                                                              240   052467.40
                                                                              000   052467.50
                                                                              000   052467.60
                                                                              000   052467.70
      %8¤DD%BU,8,8¤,002,000,000,000,210,000,000,000        -337                002   052470.00
                                                                              000   052470.10
                                                                              000   052470.20
                                                                              000   052470.30
                                                                              210   052470.40
                                                                              000   052470.50
                                                                              000   052470.60
                                                                              000   052470.70
      %8¤DD%BU,8,8¤,000,010,000,000,200,200,000,000        -357                000   052471.00
                                                                              010   052471.10
                                                                              000   052471.20
                                                                              000   052471.30
                                                                              200   052471.40
                                                                              200   052471.50
                                                                              000   052471.60
                                                                              000   052471.70
      %8¤DD%BU,8,8¤,000,000,000,200,200,000,200,000        -367                000   052472.00
                                                                              000   052472.10
                                                                              000   052472.20
                                                                              200   052472.30
                                                                              200   052472.40
                                                                              000   052472.50
                                                                              200   052472.60
                                                                              000   052472.70
      %8¤DD%BU,8,8¤,000,000,000,200,200,200,000,000        -373                000   052473.00
                                                                              000   052473.10
                                                                              000   052473.20
                                                                              200   052473.30
                                                                              200   052473.40
                                                                              200   052473.50
                                                                              000   052473.60
                                                                              000   052473.70
      %8¤DD%BU,8,8¤,140,000,000,000,020,000,000,000        -375                140   052474.00
                                                                              000   052474.10
                                                                              000   052474.20
                                                                              000   052474.30
                                                                              020   052474.40
                                                                              000   052474.50
                                                                              000   052474.60
                                                                              000   052474.70
      DD%BU,64,8¤,0                                              0000000000000000000000   052475.00
      DD%BU,64,8¤,0                                              0000000000000000000000   052476.00
      DD%BU,64,8¤,0                                              0000000000000000000000   052477.00
      DD%BU,64,8¤,0                                              0000000000000000000000   052500.00
      DD%BU,64,8¤,0                                              0000000000000000000000   052501.00
 -     FLOATRNG ONE PATTERN                                 C-BITS
PWD3  %8¤DD%BU,8,8¤,350,200,200,000,000,000,000,000        -200                350   052502.00
                                                                              200   052502.10
                                                                              200   052502.20
                                                                              000   052502.30
                                                                              000   052502.40
                                                                              000   052502.50
                                                                              000   052502.60
                                                                              000   052502.70
      %8¤DD%BU,8,8¤,050,200,000,000,000,000,200,000        -100                050   052503.00
                                                                              200   052503.10
```

```
000  052503.20
000  052503.30
000  052503.40
000  052503.50
200  052503.60
000  052503.70
%8¤DD%BU,8,8¤,110,200,000,000,000,000,200,000      -040
110  052504.00
200  052504.10
000  052504.20
000  052504.30
000  052504.40
000  052504.50
200  052504.60
000  052504.70
%8¤DD%BU,8,8¤,140,200,000,000,000,000,200,000      -020
140  052505.00
200  052505.10
000  052505.20
000  052505.30
000  052505.40
000  052505.50
200  052505.60
000  052505.70
%8¤DD%BU,8,8¤,160,000,000,000,000,000,200,000      -010
160  052506.00
000  052506.10
000  052506.20
000  052506.30
000  052506.40
000  052506.50
200  052506.60
000  052506.70
%8¤DD%BU,8,8¤,160,000,000,000,000,200,000,000      -004
160  052507.00
000  052507.10
000  052507.20
000  052507.30
000  052507.40
200  052507.50
000  052507.60
000  052507.70
%8¤DD%BU,8,8¤,350,200,000,000,000,200,000,000      -002
350  052510.00
200  052510.10
000  052510.20
000  052510.30
000  052510.40
200  052510.50
000  052510.60
000  052510.70
%8¤DD%BU,8,8¤,030,200,000,000,000,200,000,000      -001
030  052511.00
200  052511.10
000  052511.20
000  052511.30
000  052511.40
200  052511.50
000  052511.60
000  052511.70
%8¤DD%BU,8,8¤,350,000,000,200,000,000,000,000      -000
350  052512.00
000  052512.10
000  052512.20
200  052512.30
000  052512.40
000  052512.50
000  052512.60
000  052512.70

CNOP
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PWD4    %8¤DD%BU,8,8¤,000              -CCB+CARRIAGE CONTROL BYTE                    000   052513.00
        %  AZ¤DD%BU,8,8¤,PUNCH TEST USING IOS - DATA-THIS IS Z                          052513.10
        %  AZ¤DD%BU,8,8¤,CARD ONE OF PWD4 DATA WORDS. Z                                052517.50
        %  AZ¤DD%BU,8,8¤,IDENTIFIED BY A 1 IN COLUMN 80,Z                              052523.20
        %  AZ¤DD%BU,8,8¤,ROW 9. ECC MODEZ                                              052527.10
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,001                          000   052531.00
                                                                               000   052531.10
                                                                               000   052531.20
                                                                               000   052531.30
                                                                               000   052531.40
                                                                               000   052531.50
                                                                               000   052531.60
                                                                               001   052531.70
-
        %8¤DD%BU,8,8¤,000              -CCB                                    000   052532.00
        %  AZ¤DD%BU,8,8¤,  THIS IS CARD TWO OF PWD4 DATA Z                             052532.10
        %  AZ¤DD%BU,8,8¤,WORDS. IT IS IDENTIFIED WITH A 1Z                             052536.10
        %  AZ¤DD%BU,8,8¤, IN COLUMN 80, ROW 8...ECC MODEZ                              052542.10
        DD%BU,64,8¤,0                                  00000000000000000000000000   052546.00
        DD%BU,64,8¤,0                                  00000000000000000000000000   052547.00
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,002                          000   052550.00
                                                                               000   052550.10
                                                                               000   052550.20
                                                                               000   052550.30
                                                                               000   052550.40
                                                                               000   052550.50
                                                                               000   052550.60
                                                                               002   052550.70
-
PWD5    %8¤DD%BU,8,8¤,000              -CCB                                    000   052551.00
        %  AZ¤DD%BU,8,8¤, THIS IS CARD ONE OF PWD5 DATA Z                              052551.10
        %  AZ¤DD%BU,8,8¤,WORDS. IT IS IDENTIFIED WITH A 1Z                             052555.00
        %  AZ¤DD%BU,8,8¤, IN COLUMN 78, ROW 8+9. NO-ECC. Z                             052561.00
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,003                          000   052565.00
                                                                               000   052565.10
                                                                               000   052565.20
                                                                               000   052565.30
                                                                               000   052565.40
                                                                               000   052565.50
                                                                               000   052565.60
                                                                               003   052565.70
        %8¤DD%BU,8,8¤,000                                                      000   052566.00
        %  AZ¤DD%BU,8,8¤, THIS IS CARD TWO OF PWD5 DATA Z                              052566.10
        %  AZ¤DD%BU,8,8¤,WORDS. IT IS IDENTIFIED WITH A 1Z                             052572.00
        %  AZ¤DD%BU,8,8¤, IN COLUMN 78, ROW 7.NO-ECC MODEZ                             052576.00
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,004                          000   052602.00
                                                                               000   052602.10
                                                                               000   052602.20
                                                                               000   052602.30
                                                                               000   052602.40
                                                                               000   052602.50
                                                                               000   052602.60
                                                                               004   052602.70
PWD6    %8¤DD%BU,8,8¤,000                                                      000   052603.00
        %  AZ¤DD%BU,8,8¤,XTENDED CF-1 PUNCH TESTZ                                      052603.10
-
PWD6A   %  AZ¤DD%BU,8,8¤, CARD IS NUMBERED OCTAL IN LAST Z                             052606.00
        %  AZ¤DD%BU,8,8¤,COLUMN. NON-ECC MODE....Z                                     052612.00
PWD6B   %  AZ¤DD%BU,8,8¤,CARD ONE OF EXTENDED CF-1 TEST..Z                             052615.00
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,006                          000   052621.00
                                                                               000   052621.10
                                                                               000   052621.20
                                                                               000   052621.30
                                                                               000   052621.40
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PWD6C   %  AZ¤DD%BU,8,8¤,CARD TWO OF EXTENDED CF-1 TEST..Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,007
PWD6D   %  AZ¤DD%BU,8,8¤,CARD THREE OF EXTENDED CF1 TEST.Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,010
PWD6E   %  AZ¤DD%BU,8,8¤,CARD FOUR OF EXTENDED CF-1 TEST.Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,011
PWD6F   %  AZ¤DD%BU,8,8¤,CARD FIVE OF EXTENDED CF-1 TEST.Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,012
PWD6G   %  AZ¤DD%BU,8,8¤,CARD SIX OF EXTENDED CF-1 TEST..Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,013
PWD6H   %  AZ¤DD%BU,8,8¤,CARD SEVEN OF EXTENDED CF1 TEST.Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,014
PWD6J   %  AZ¤DD%BU,8,8¤,CARD EIGHT OF EXTENDED CF1 TEST.Z
        %8¤DD%BU,8,8¤,000,000,000,000,000,000,000,015
```

```
000 052621.50
000 052621.60
006 052621.70
    052622.00
000 052626.00
000 052626.10
000 052626.20
000 052626.30
000 052626.40
000 052626.50
000 052626.60
007 052626.70
    052627.00
000 052633.00
000 052633.10
000 052633.20
000 052633.30
000 052633.40
000 052633.50
000 052633.60
010 052633.70
    052634.00
000 052640.00
000 052640.10
000 052640.20
000 052640.30
000 052640.40
000 052640.50
000 052640.60
011 052640.70
    052641.00
000 052645.00
000 052645.10
000 052645.20
000 052645.30
000 052645.40
000 052645.50
000 052645.60
012 052645.70
    052646.00
000 052652.00
000 052652.10
000 052652.20
000 052652.30
000 052652.40
000 052652.50
000 052652.60
013 052652.70
    052653.00
000 052657.00
000 052657.10
000 052657.20
000 052657.30
000 052657.40
000 052657.50
000 052657.60
014 052657.70
    052660.00
000 052664.00
000 052664.10
000 052664.20
000 052664.30
000 052664.40
000 052664.50
000 052664.60
015 052664.70
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                PWD6H   %  AZ=DD%BU,8,8=,CARD NINE OF EXTENDED CF-1 TEST.Z                                                  052665.00
                        %8=DD%BU,8,8=,000,000,000,000,000,000,000,016                                          000      052671.00
                                                                                                               000      052671.10
                                                                                                               000      052671.20
                                                                                                               000      052671.30
                                                                                                               000      052671.40
                                                                                                               000      052671.50
                                                                                                               000      052671.60
                                                                                                               016      052671.70
                PWD6L   %  AZ=DD%BU,8,8=,CARD TEN OF EXTENDED CF-1 TEST..Z                                             052672.00
                        %8=DD%BU,8,8=,000,000,000,000,000,000,000,017                                          000      052676.00
                                                                                                               000      052676.10
                                                                                                               000      052676.20
                                                                                                               000      052676.30
                                                                                                               000      052676.40
                                                                                                               000      052676.50
                                                                                                               000      052676.60
                                                                                                               017      052676.70
                PRES1   %8=DD%BU,8,8=,001                                                                       001      052677.00
                        %  AZ=DD%BU,8,8=,THIS IS THE DATA FROM THE WRITEZ                                             052677.10
                        %  AZ=DD%BU,8,8=, AREA OF THE PUNCH TEST.Z                                                  052703.00
                PRES2   %8=DD%BU,8,8=,001                                                                       001      052706.00
                        %  AZ=DD%BU,8,8=,THIS IS THE DATA FROM THE READ Z                                           052706.10
                        %  AZ=DD%BU,8,8=, AREA OF THE PUNCH TEST.Z                                                  052712.00
                PRES3   DR%BU,64,8=,30                  -READ-IN AREA                   36.00                       052715.00
                PRES3A  DR%BU,64,8=,26                  -READ-IN AREA-ECC               32.00                       052753.00
                PRES4   DR%BU,64,8=,15                  -NON-ECC MODE                   17.00                       053005.00
                PRES5   DR%BU,64,8=,15                                                  17.00                       053024.00
                PRES6   DR%BU,64,8=,15                                                  17.00                       053043.00
                PRES7   DR%BU,64,8=,15                                                  17.00                       053062.00
                PRES8   DR%BU,64,8=,15                                                  17.00                       053101.00
                PRES9   DR%BU,64,8=,15                                                  17.00                       053120.00
                PRES10  DR%BU,64,8=,15                                                  17.00                       053137.00
                PRES11  DR%BU,64,8=,15                                                  17.00                       053156.00
                PRES12  DR%BU,64,8=,15                                                  17.00                       053175.00
                PRES13  DR%BU,64,8=,15                                                  17.00                       053214.00
                PRES14  DR%BU,64,8=,13          -READ-IN AREA                           15.00                       053233.00
                PRES15  DR%BU,64,8=,13          -NON-ECC MODE                           15.00                       053250.00
                PRES16  DR%BU,64,8=,13                                                  15.00                       053265.00
                PRES17  DR%BU,64,8=,13                                                  15.00                       053302.00
                PRES18  DR%BU,64,8=,13                                                  15.00                       053317.00
                PRES19  DR%BU,64,8=,13                                                  15.00                       053334.00
                PRES20  DR%BU,64,8=,13                                                  15.00                       053351.00
                PRES21  DR%BU,64,8=,13                                                  15.00                       053366.00
                PRES22  DR%BU,64,8=,13                                                  15.00                       053403.00
                PRES23  DR%BU,64,8=,13                                                  15.00                       053420.00
                END     DR%BU,64,8=,1                                                    1.00                       053435.00
                        END,START                                                    50000.00                       053436.00
```